

REPORT NUMBER KAR22001-08

**NEW CAR ASSESSMENT PROGRAM
FRONTAL BARRIER IMPACT TEST**

**MAZDA MOTOR CORPORATION
2002 MAZDA MPV LX
MINIVAN**

NHTSA NUMBER: M25400

**PREPARED BY:
KARCO ENGINEERING, LLC
9270 HOLLY ROAD
ADELANTO, CALIFORNIA 92301**



MAY 27, 2002

FINAL REPORT

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Prepared by: _____
Mr. James E. Gorth, Project Engineer
KARCO Engineering, LLC

Date: May 27, 2002

Reviewed by: _____
Mr. Jerry L. Kratzke, Director of Operations
KARCO Engineering, LLC

Date: May 27, 2002

Approved by: _____
Mr. Frank D. Richardson, Program Manager
KARCO Engineering, LLC

Date: May 27, 2002

FINAL REPORT ACCEPTED BY:

Manager, New Car Assessment Program

Date of Acceptance

COTR, NCAP Frontal Impact Program

Date of Acceptance

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16. Abstract A 35 mph (56.3 km/h) frontal barrier impact was conducted on a 2002 Mazda MPV LX Minivan at KARCO Engineering, LLC on 5/14/02. This test was conducted to obtain data indicant of FMVSS 208, 212, 219 (partial), 301, and footwell intrusion performance. The impact velocity is 55.82 km/h. The ambient temperature at the barrier face at the time of impact is 28.3 degrees Celcius. The vehicle's maximum post test static crush is 460 mm at the vehicle centerline. The test vehicle is equipped with a 3-point continuous belt system and second generation supplemental airbags in both front outboard seating positions. With respect to FMVSS 208 "Occupant Crash Protection", the occupant injury criteria summary is as follows:					
Measurement Description		Units	Threshold	Driver ATD	Passenger ATD
Head Injury Criteria (HIC)		N/A	1000	424.8	344.1
Max. Thorax Accel. (3 msec Clip)		G's	60	41.8	41.1
Left Femur force		Newtons	10000	-6127.6	-3016.3
Right Femur Force		Newtons	10000	-3630.9	-2102.5
17. Key Words 56.3 km/h NCAP Frontal Barrier Impact Test New Car Assessment Program (NCAP) 2002 Mazda MPV LX Minivan NHTSA No. M25400				18. Distribution Statement Copies of this report available from: NHTSA Technical Reference Division National Highway Traffic Safety Admin. 400 Seventh St., SW, Room 5108 Washington, DC 20590	
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SECTION 1

PURPOSE AND SUMMARY OF TEST M25400

1.1 PURPOSE

This 35 mph (56.3 km/h) frontal barrier impact test is part of the Vehicle Barrier Impact Testing Program sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. DTNH22-01-D-02005. The purpose of this test was to obtain vehicle crashworthiness and occupant restraint system performance data for an impact speed in excess of the current 30 mph (48.3 km/h) requirements.

The 35 mph (56.3 km/h) frontal barrier impact test was conducted in accordance with the Office of Crashworthiness Standards Laboratory Test procedure.

1.2 SUMMARY

A load cell barrier consisting of 24 load cells was impacted by a 2002 Mazda MPV LX Minivan at a velocity of 55.82 km/h. The test was performed at Karco Engineering, LLC on May 14, 2002. Pre- and post-test photographs of the vehicle and dummies can be found in Appendix A.

One real-time and 16 high-speed cameras were used to document the frontal barrier impact event. Camera locations and other pertinent camera information can be found in this report.

Two Part 572E, 50th percentile male anthropomorphic test devices (ATDs), were placed in the driver and right-front passenger seating positions according to dummy placement instructions specified in the Laboratory Indicant Test Procedure.

Both ATDs were fully instrumented with nine accelerometer array head, chest and pelvis triaxial accelerometers, chest displacement potentiometers, six-axis upper neck transducers, right/left femur load cells, and lower leg instrumentation. Seat belt load cells were also placed on the driver's and passenger's lap and shoulder belts to measure dummy torso and pelvic section loading. The driver (position 1) ATD (Serial No. 35) and the right-front passenger (position 2) ATD (Serial No. 34) were calibrated two tests previous to this test.

One Hundred and Nine (109) channels of data were recorded using an on-board data acquisition system. Appendix B contains the vehicle and dummy response data traces. Appendix C contains Load Cell Barrier information. Appendix D contains the Instrumentation Data Channel assignments. Appendix E contains the Dummy Calibration data and Appendix F contains the owner's manual instructions for the occupant and restraint systems. Appendix G contains the Nine Accelerometer Head Array data.

There was 100 percent windshield retention and no intrusion into the protected zone of the windshield during the impact event. There was no Stoddard solvent leakage after the event or during any phase of the static rollover.

The maximum static crush of the vehicle was 460 mm and both the driver and the passenger side doors remained closed and latched during the impact event and were operable without the aid of tools after the impact.

The driver's visible contact points were as follows: The driver ATD head contacted the airbag, its chest and abdomen contacted the airbag, and both knees contacted the steering column/dash.

The passenger's visible contact points were as follows: The passenger ATD head contacted the airbag and headrest. The chest and abdomen contacted the airbag. Both knees contacted the glove box/dash.

Occupant injury data is contained in table below.

OCCUPANT DATA SUMMARY

ATD Position	HIC	Clip (g)	Chest Disp (mm)	Left Femur (N)	Right Femur (N)	Belt Spool (mm)
Driver	424.8	41.8	-27.5	-6127.6	-3630.9	169.8
Passenger	345.0	41.1	-26.3	-3016.3	-2102.5	214.8

SECTION 2
OCCUPANT AND VEHICLE INFORMATION/DATA SHEETS

Test Vehicle: 2002 Mazda MPV LX Minivan
Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400
Test Date: 5/14/02

CONVERSION FACTORS USED IN THIS REPORT*

Quantity	Typical Application	Std Units	Metric Unit	Multiply By
Mass	Vehicle Weight	lb	kg	0.4536
Linear Velocity	Impact Velocity	mile/h	km/h	1.609
Length or Distance	Measurements	in	mm	25.4
Volume	Fuel Systems	gal	liter	3.785
Volume	Small Fluids	oz	mL	29.573
Pressure	Tire Pressures	lbf/in ²	kPa	7.0
Volume	Liquid	gal	liter	3.785
Temperature	General Use	°F	°C	$=(t_f - 32)/1.8$
Force	Dynamic Forces	lbf	N	4.448
Moment	Torque	lbf/ft	Nm	1.355

* Based on the Recommended Practice in SAE J916, May 85

DATA SHEET NO. 1
CRASH TEST SUMMARY

Test Vehicle: 2002 Mazda MPV LX Minivan
Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400
Test Date: 5/14/02

PRIMARY IMPACT DATA

Measured Parameter	Units	Value
Velocity at Impact	km/h	55.82
Test Weight	kg	1973
Impact Angle	degrees	0
Average Rebound	mm	553
Maximum Static Crush	mm	486

DOOR OPENING AND SEAT TRACK INFORMATION

Description	Driver	Passenger
Front Door Opening	Remained closed & latched, opened w/o the aid of tools	Remained closed & latched, opened w/o the aid of tools
Rear Door Opening	Remained closed & latched, opened w/o the aid of tools	Door Remained Latched & Opened w/o aid of tools
Seat Track Shift (mm)	None	None
Seat Back Failure	None	None

TEST DUMMY INFORMATION

Description	Driver	Passenger
Dummy Type / Serial No.	50% Male Hybrid III / No. 35	50% Male Hybrid III / No. 34
Head Contact	Airbag	Airbag/Headrest
Chest Contact	Airbag	Airbag
Abdomen Contact	None	Airbag
Left Knee Contact	Steering Column/Dash	Glove Box/Dash
Right Knee Contact	Steering Column/Dash	Glove Box/Dash

16mm MOVIE COVERAGE

High Speed	16
Real Time	1
Total	17

DATA CHANNELS

Driver ATD Sensors	46
Passenger ATD Sensors	46
Belt Assessment Sensors	8
Vehicle Structure Accelerometers	9
Rigid Barrier Load Cells	24
Total	133

DATA SHEET NO. 2
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2002 Mazda MPV LX Minivan
 Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400
 Test Date: 5/14/02

TEST VEHICLE INFORMATION

Make	Mazda
Model	MPV
Body Style	5-Door
NHTSA No.	M25400
VIN	JM3LW28A420319819
Color	Sage Green
Delivery Date	5/6/2002
Odometer Reading (mi.)	2
Dealer	Romero Mazda
Transmission	4-Speed Automatic
Final Drive	Front
Type/No. Cylinders	V-6
Engine Displacement (L)	3.0
Engine Placement	Transverse
Front Seat Side Airbag	No

TEST VEHICLE OPTIONS

Driver Front Airbag	Yes
Pass. Front Airbag	Yes
Power Windows	Yes
Pre-Tensioners	Yes
Power Door Locks	Yes
Tilt Wheel	Yes
Air Conditioning	Yes
Power Brakes	Yes
Disc Brakes, Front	Yes
Disc Brakes, Rear	No
Anti-lock Brakes	No
Head Airbag	No
Load Limiter	Yes
Cruise Control	Yes
Bucket Seats	Yes

DATA FROM CERTIFICATION LABEL

Manufactured By	Mazda Motor Corporation	GVWR (kg)	2372
Date of Manufacture	March-02	GAWR Front (kg)	1180
		GAWR Rear (kg)	1214

DATA FROM TIRE PLACARD

Measured Parameter	Front	Rear
Max. Tire Pressure (kPa)	245	245
Cold Pressure (kPa)	245	245
Recommend Tire Size	205/65R15	205/65R15
Tire Size on Vehicle	205/65R15	205/65R15
Tire Manufacturer	Dunlop	Dunlop

VEHICLE SEATING AND CAPACITY WEIGHT INFORMATION

Measured Parameter	Front	Rear	Third	Total
Type of Seats	Bucket	Bench	None	
Number of Occupants	2	3	2	7
Capacity Wt. (VCW) (kg)				681
Cargo Weight (RCLW) (kg)				136

DATA SHEET NO. 2...(CONTINUED)
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2002 Mazda MPV LX Minivan
 Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400
 Test Date: 5/14/02

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)		
		Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total
Left	kg	520	357		551	458	
Right	kg	488	327		526	438	
Ratio	%	59.6	40.4		54.6	45.4	
Totals	kg	1008	683	1691	1077	896	1973

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value
Total Delivered Weight (UVW)	kg	1691
Weight of 2 P572 ATD's	kg	152
Rated Cargo/Luggage Weight (RCLW)	kg	136
Calculated Vehicle Target Weight (TVTW)	kg	1979

TEST VEHICLE ATTITUDE AND CG

	Units	LF	RF	LR	RR	CG (aft of front axle)
As Delivered	mm	741	742	750	754	1146
As Tested	mm	728	728	714	716	1288

Vehicle Wheel base (mm): 2837

Weight of Ballast secured in cargo area (kg): 73

Vehicle Components Removed: _____

* Ballast weight does not include cameras, instrumentation, and brake abort system.

FUEL SYSTEM DATA

Fuel System Capacity From Owner's Manual (L): 75.0

Usable Capacity Figure Furnished by COTR (L): 75.0

Actual Test Volume with entire fuel System Filled (L): 69.7

Test Fluid Type: Stoddard Solvent ; Specific Gravity: 0.764

Kinematic Viscosity: as per ASTM Standard D484-71 ; Color: Red

Is Vehicle Fuel Pump Electric or Mechanical?: Electric

If electric, does pump operate with ignition switch "ON" & engine "OFF"? Yes

Fuel System Particulars: Driver side filler door, tank mounted at rear.

DATA SHEET NO. 3
POST IMPACT DATA

Test Vehicle: 2002 Mazda MPV LX Minivan
Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400
Test Date: 5/14/02

SPEED TRAP DATA

Measured Parameter	Units	Requirement	Value
Trap No. 1 Velocity (Primary)	km/h	55.51 to 57.12	55.82
Trap No. 1 Entry Distance	mm	< 1524	1524
Trap No. 1 Exit Distance	mm	< 1524	305
Trap No. 2 Velocity (Redundant)	km/h	55.51 to 57.12	55.87
Trap No. 2 Entry Distance	mm	< 1524	1524
Trap No. 2 Exit Distance	mm	< 1524	305

VEHICLE STATIC CRUSH

Measured Parameter	Units	Pre-Test	Post-Test	Difference
Left Side	mm	4635	4180	-455
Center	mm	4765	4305	-460
Right Side	mm	4635	4194	-441

VEHICLE REBOUND FROM BARRIER

Measured Parameter	Units	Value
Left Side	mm	602
Center	mm	492
Right Side	mm	565
Average	mm	553

DATA SHEET NO. 4
TEST VEHICLE INFORMATION

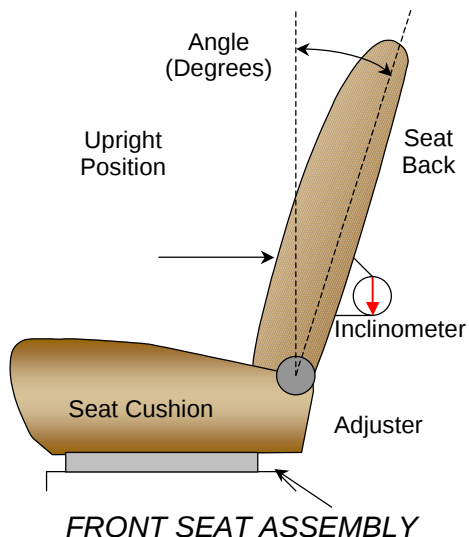
Test Vehicle: 2002 Mazda MPV LX Minivan
Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400
Test Date: 5/14/02

NOMINAL DESIGN RIDING POSITION

The driver and passenger seat backs are positioned to the manufacturers designated angle. The procedure is as follows: A special application tool with pointed probes is inserted through the fabric to make contact with the rigid portion of the lower seat frame assembly, approximately 13 inches above the pivot point of the seat back. An inclinometer is placed against the flat surface of the tool and the seat back angle is measured directly from the dial face.

Driver seat back angle: 18° with a seated dummy
Passenger seat back angle: 18° with a seated dummy



SEAT FORE/AFT POSITIONS

Both driver and passenger seats have 17 positions or detents. The first or forward most position is counted as number one (1). The fore/aft position is set aft of the middle position for both driver and passenger.

Driver seat fore/aft total travel: 17 seating positions or detents
Driver seat fore/aft position: 9th detent from forward most
Passenger seat fore/aft total travel: 17 seating positions or detents
Passenger seat fore/aft position: 9th detent from forward most

SEAT BELT UPPER ANCHORAGE

The test vehicle is equipped with adjustable anchorages for both driver and passenger seat positions. There are 5 positions or detents. Both the driver and the passenger anchorages are placed in the 3rd position from the uppermost.

DATA SHEET NO. 4...(CONTINUED)
TEST VEHICLE INFORMATION

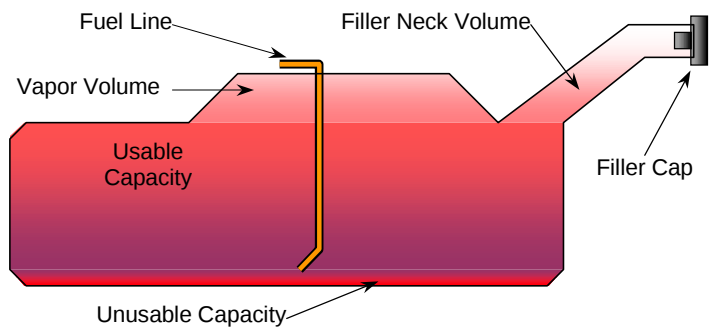
Test Vehicle: 2002 Mazda MPV LX Minivan
 Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400
 Test Date: 5/14/02

FUEL TANK CAPACITY DATA

The "Usable Capacity" of the standard equipment fuel tank is:	<u>75.0</u>	liters
The "Usable Capacity" of any optional equipment fuel tank is:	<u>75.0</u>	liters
"Usable Capacity" used for certification tests FMVSS 301 requirements:	<u>68.9 to 70.4</u>	liters
Actual amount of Stoddard solvent added to vehicle for certification test:	<u>69.7</u>	liters

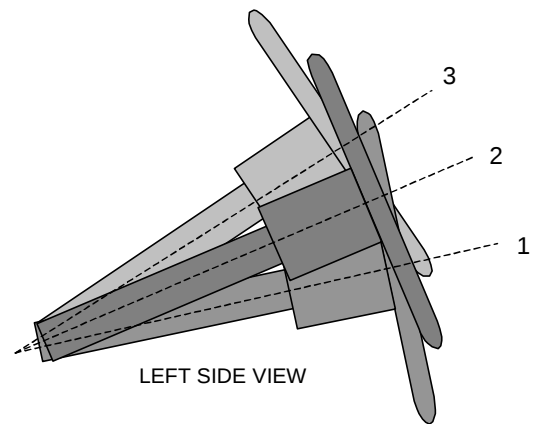
The test vehicle is equipped with an electric fuel pump. The fuel pump operates for approximately two seconds after the ignition is placed in the "ON" position, after which the fuel pump automatically shuts off. The fuel filler door is located on the left rear fender. The standard fuel tank occupies the area under the rear seat. Fuel lines run inside the right frame rail to the engine compartment.



VEHICLE FUEL TANK ASSEMBLY

STEERING COLUMN ADJUSTMENT

Steering wheel and column adjustments are made so that the steering wheel hub is at the geometric center of the locus it describes when moved through its full range of motion. An aluminum plate is placed across the rim of the steering wheel, an inclinometer is placed on the plate and the angle is measured. The steering column has seven (7) positions or detents and is set in the fourth (4) detent as indicated by the diagram at right and the angle below.



STEERING COLUMN ASSEMBLY

Lowermost; position 1:	<u>23°</u>
Geometric center; position 2:	<u>21°</u>
Uppermost position 3:	<u>18°</u>

DATA SHEET NO. 5
DUMMY POSITIONING IN VEHICLE

Test Vehicle: 2002 Mazda MPV LX Minivan
Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400
Test Date: 5/14/02

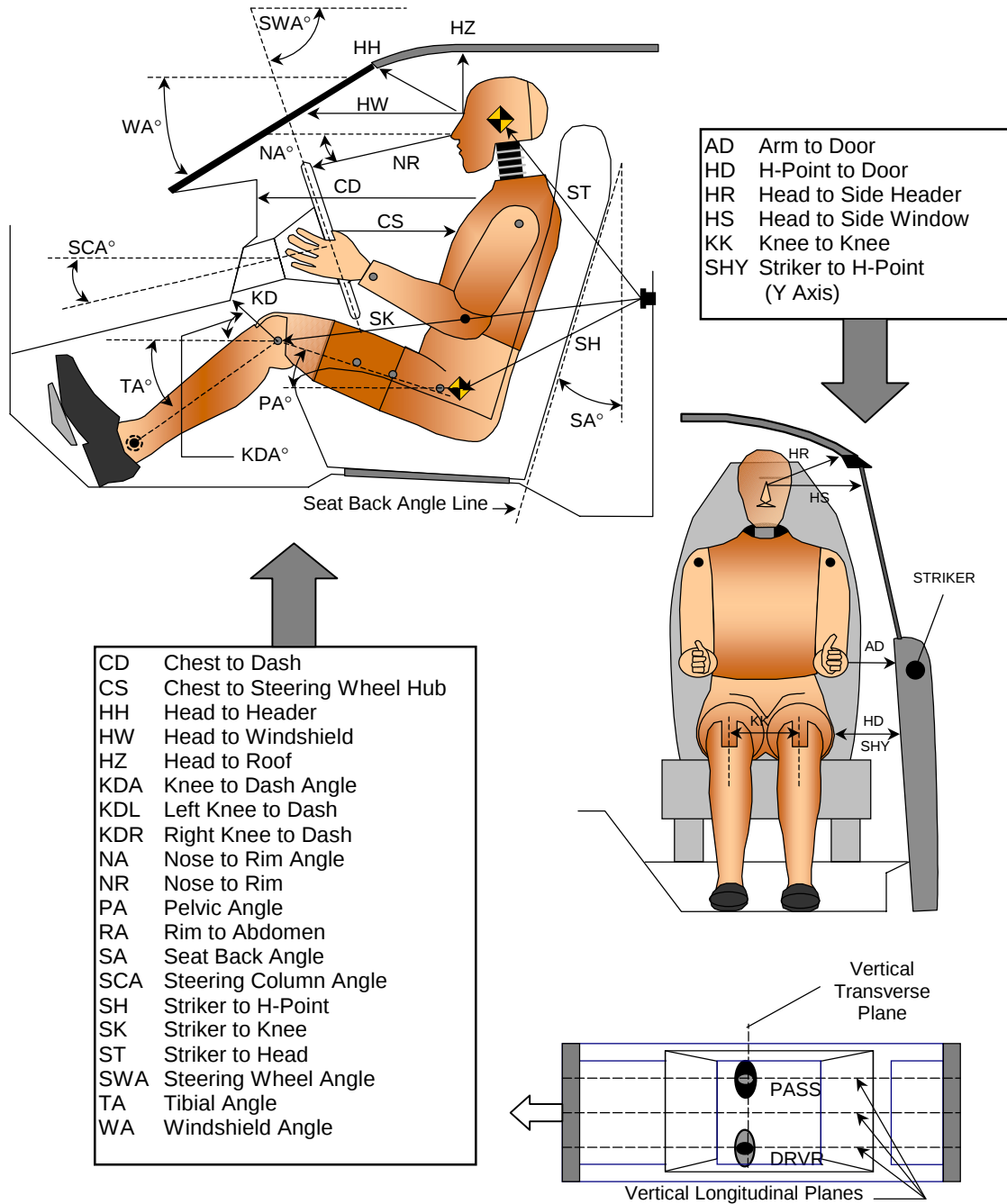
TEST DUMMY POSITION MEASUREMENTS

Code	Measurement Description	Driver		Passenger	
		Length (mm)	Angle (°)	Length (mm)	Angle (°)
WA	Windshield Angle		30		
SWA	Steering Wheel Angle		69		
SCA	Steering Column Angle		21		
SA	Seat Back Angle		18		18
HZ	Head to Roof (Z)	252	90	233	90
HH	Head to Header	394		380	
HW	Head to Windshield	675		680	
HR	Head to Side Header (Y)	268		264	
NR	Nose to Rim	409	16		
CD	Chest to Dash	518		564	
CS	Chest to Steering Hub	313			
RA	Rim to Abdomen	155			
KDL	Left Knee to Dash	105	31	70	
KDR	Right Knee to Dash	105		106	27
PA	Pelvic Angle		23		23
TA	Tibia Angle		50		51
KK	Knee to Knee (Y)	320		277	
ST	Striker to Head	620	1	620	1
SK	Striker to Knee	616	75	609	80
SH	Striker to H-Point	231		235	
SHY	Striker to H-Point (Y)	371		261	
HS	Head to Side Window	348		346	
HD	H-Point to Door (Y)	157		154	
AD	Arm to Door (Y)	154		48	

DATA SHEET NO. 5...(CONTINUED) **DUMMY POSITIONING IN VEHICLE**

Test Vehicle: 2002 Mazda MPV LX Minivan
 Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400
 Test Date: 5/14/02



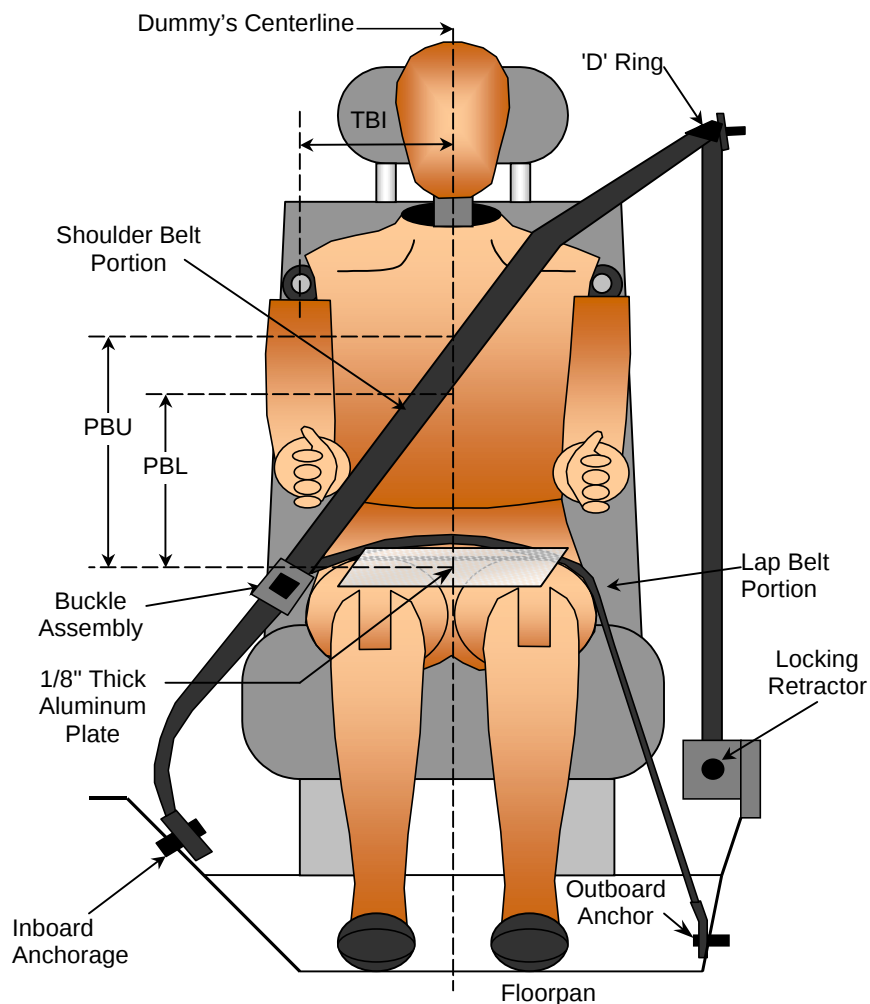
DUMMY MEASUREMENTS FOR FRONT SEAT OCCUPANTS

DATA SHEET NO. 6

SEATBELT POSITIONING DATA

Test Vehicle: 2002 Mazda MPV LX Minivan
 Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400
 Test Date: 5/14/02



SEAT BELT POSITIONING MEASUREMENTS

Measurement Description	Units	Driver	Passenger
TBI - Dummy C/L to Lap/Shoulder Belt Intersect	mm	220	235
PBU - Top surface of reference to belt upper edge	mm	330	340
PBL - Top surface of reference to belt lower edge	mm	245	254
Lap Belt tension	Newton's	10	10
Shoulder Belt tension	N/A	Retractor	Retractor

DATA SHEET NO. 7 - VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY

Test Vehicle: 2002 Mazda MPV LX Minivan

NHTSA No.: M25400

Test Program: 2002 NHTSA 35mph NCAP

Test Date: 5/14/02

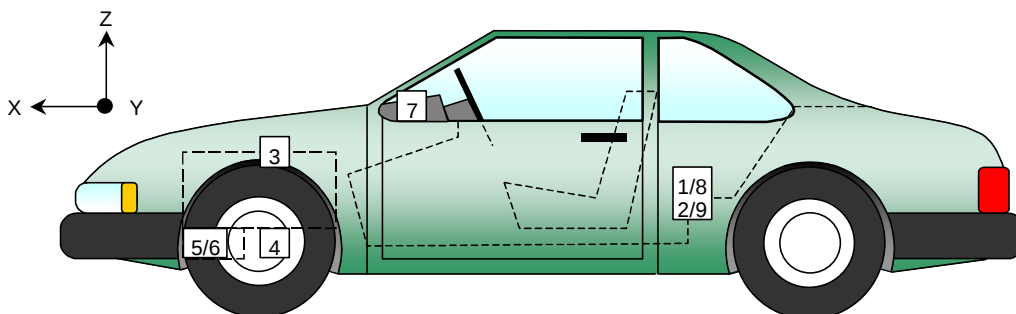
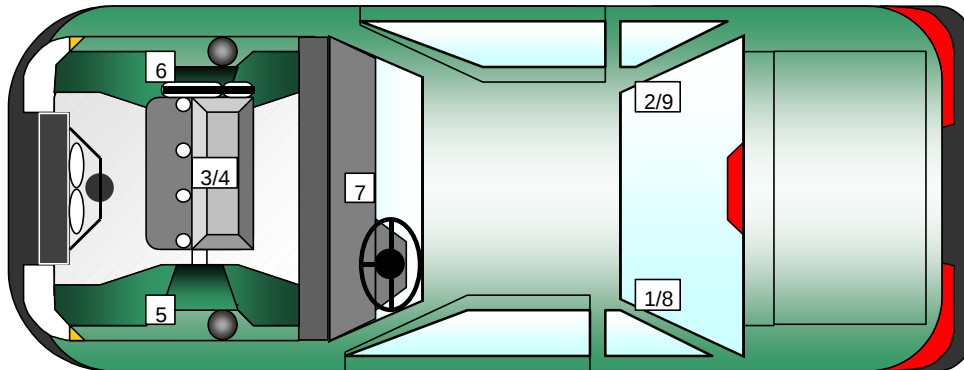
VEHICLE ACCELEROMETER PEAK DATA AND PRE-TEST LOCATIONS

No.	Accelerometer Location	Measurements (mm)			Peak Values				
		X	Y	Z	Units	Max	Time	Min	Time
1	Left Rear X-Member	1615	-645	475	G's	1.0	143.1	-36.7	7.5
2	Right Rear X-Member	1570	645	475	G's	1.8	13.1	-36.8	40.7
3	Engine Top	3960	115	900	G's	68.1	33.0	-189.3	27.2 *
4	Engine Bottom	4060	160	165	G's	50.3	33.8	-167.7	26.4
5	Left Brake Caliper	4020	-715	230	G's	26.5	55.1	-149.3	34.4
6	Right Brake Caliper	4020	715	230	G's	31.5	58.3	-93.9	43.2
7	Instrument Panel	3300	-20	1145	G's	0.0	0.0	0.0	0.0 **
8	Left Rear X-Member (Z-Axis)	N/A	N/A	N/A	G's	8.9	50.7	-6.1	12.5
9	Right Rear X-Member (Z-Axis)	1550	645	475	G's	7.3	44.4	-5.2	64.5

Reference Planes: X=From Rear Surface of Vehicle, Y=Vehicle Centerline, Z=Ground Plane

* Channel failed at 44.6 msec.

** Not installed per manufacturer's request



DATA SHEET NO. 8 - HYBRID III ATD INJURY CRITERIA AND SENSOR DATA

Test Vehicle: 2002 Mazda MPV LX Minivan

NHTSA No.: M25400

Test Program: 2002 NHTSA 35mph NCAP

Test Date: 5/14/02

HEAD PRIMARY PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Head CG	X	G's	3.5	252.9	-55.3	81.2	4.5	245.5	-41.6	72.9
Head CG	Y	G's	8.1	100.2	-5.0	67.1	3.7	32.5	-10.7	71.5
Head CG	Z	G's	25.0	67.6	-11.4	99.1	31.2	70.7	-7.9	112.5
Head CG Resultant	N/A	G's	57.3	80.7			50.5	71.3		

CHEST PRIMARY PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Chest CG	X	G's	2.8	133.5	-41.2	71.6	1.2	147.1	-41.0	67.3
Chest CG	Y	G's	7.6	81.2	-2.4	31.1	3.1	47.3	-7.8	70.6
Chest CG	Z	G's	11.1	59.7	-13.7	102.2	13.4	70.2	-16.2	114.7
Chest CG Resultant	N/A	G's	42.6	71.6			42.0	67.5		

FEMUR PEAK FORCES

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Left Femur	Z	Newtons	210.2	29.9	-6127.6	39.4	288.4	18.9	-3016.3	52.3
Right Femur	Z	Newtons	606.1	31.7	-3630.9	54.7	372.6	23.6	-2102.5	39.3

SEAT BELT SENSOR PEAK VALUES

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Shoulder Belt Pullout	N/A	MM	129.6	81.2	-63.0	32.8	139.0	80.3	-59.6	32.2
Shoulder Belt Stretch	N/A	MM/CM	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0
Lap Belt Force	N/A	Newtons	4937.9	59.6	0.7	3.6	6666.9	55.9	-18.4	123.4
Shoulder Belt Force	N/A	Newtons	5350.0	54.6	-42.8	6.4	5200.4	48.6	-31.1	6.5

* Not used with pre-tensioner

PRIMARY HEAD INJURY CRITERIA (HIC)

Location	Driver				Passenger			
	HIC	T ¹	T ²	Avg G	HIC	T ¹	T ²	Avg G
Head CG Primary	424.8	61.4	97.3	42.5	345.0	55.9	91.8	39.1

PRIMARY CHEST CLIP (3MSEC)

Location	Driver			Passenger		
	CLIP	T ¹	T ²	CLIP	T ¹	T ²
Chest CG Primary	41.8	70.4	73.4	41.1	65.1	68.1

DATA SHEET NO. 8...(continued)

Test Vehicle: 2002 Mazda MPV LX Minivan

NHTSA No.: M25400

Test Program: 2002 NHTSA 35mph NCAP

Test Date: 5/14/02

PELVIC PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Pelvis	X	G's	4.5	103.5	-54.8	54.2	6.5	122.3	-57.4	50.5
Pelvis	Y	G's	6.6	94.4	-5.8	54.4	4.2	55.7	-11.5	80.7
Pelvis	Z	G's	2.9	223.1	-16.8	98.6	2.8	204.9	-16.7	66.1
Pelvis Resultant	N/A	G's	55.8	54.2			57.6	52.8		

UPPER NECK PEAK FORCES AND MOMENTS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Neck Force	X	Newtons	247.6	69.0	-412.7	123.1	267.8	64.1	-556.3	141.6
Neck Force	Y	Newtons	264.9	93.0	-116.6	40.6	115.1	75.2	-198.9	159.3
Neck Force	Z	Newtons	1887.4	73.3	-438.9	102.5	1078.4	55.5	-404.4	113.8
Neck Force Resultant	N/A	Newtons	1890.7	73.3			1101.6	55.5		
Neck Moment	X	N•m	11.1	83.0	-8.3	58.2	14.8	92.3	-8.0	55.9
Neck Moment	Y	N•m	33.9	143.6	-33.7	81.8	38.9	151.5	-17.4	235.5
Neck Moment	Z	N•m	9.8	84.0	-7.0	114.0	20.8	94.8	-9.5	143.8
Neck Moment Resultant	N/A	N•m	36.4	81.1			39.8	151.4		

FOOT PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Left Foot Aft	X	G's	21.1	91.0	-36.3	41.2	74.8	70.3	-113.4	40.2
Left Foot Aft	Z	G's	2.4	150.8	-35.0	44.0	44.2	48.4	-122.6	42.4
Left Foot Fore	Z	G's	26.6	50.6	-73.5	35.9	123.4	48.4	-260.2	41.8
Right Foot Aft	X	G's	39.2	71.6	-194.2	47.6	46.7	78.1	-90.8	46.1
Right Foot Aft	Z	G's	23.7	70.4	-181.2	48.4	8.7	101.0	-77.0	44.8
Right Foot Fore	Z	G's	42.6	55.5	-258.6	46.2	41.2	52.3	-146.0	44.7

UPPER AND LOWER TIBIA PEAK FORCES AND MOMENTS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Left Upper Moment	X	N•m	45.7	43.0	-16.8	82.2	44.4	58.9	-23.3	47.4
Left Upper Moment	Y	N•m	91.5	35.3	-46.9	58.0	44.0	71.6	-33.4	47.4
Right Upper Moment	X	N•m	26.0	42.3	-73.9	58.1	30.3	68.3	-47.7	74.7
Right Upper Moment	Y	N•m	92.3	43.1	-159.0	51.0	47.1	79.3	-75.4	46.5
Left Lower Moment	X	N•m	8.5	41.2	-33.3	51.6	19.7	54.8	-27.2	46.9
Left Lower Moment	Y	N•m	100.4	89.3	-23.5	44.0	302.5	71.9	-82.9	42.6
Left Lower Force	Z	Newtons	118.1	108.0	-2303.3	90.5	1205.2	43.5	-3530.7	73.5
Right Lower Moment	X	N•m	12.6	76.2	-33.3	49.5	38.1	68.9	-22.9	46.8
Right Lower Moment	Y	N•m	165.9	78.0	-121.2	48.2	341.4	77.1	-62.5	45.7
Right Lower Force	Z	Newtons	199.6	31.2	-3130.3	48.9	278.6	44.8	-3155.5	78.1

DATA SHEET NO. 8...(continued)Test Vehicle: 2002 Mazda MPV LX MinivanNHTSA No.: M25400Test Program: 2002 NHTSA 35mph NCAPTest Date: 5/14/02**CHEST PEAK DISPLACEMENTS**

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Chest CG	X	MM	0.3	2.2	-27.5	82.7	0.3	12.0	-26.3	66.4

HEAD REDUNDANT PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Head CG	X	G's	4.8	266.6	-53.7	80.0	5.2	237.5	-40.6	73.3
Head CG	Y	G's	8.1	106.8	-4.1	67.6	4.1	32.3	-10.5	73.0
Head CG	Z	G's	24.5	67.8	-11.3	103.6	31.2	70.9	-8.0	113.4
Head CG Resultant	N/A	G's	55.9	80.0			49.6	71.8		

CHEST REDUNDANT PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Chest CG	X	G's	2.0	133.3	-41.5	72.4	1.1	146.8	-41.4	67.5
Chest CG	Y	G's	7.7	81.2	-2.5	31.0	4.1	47.6	-7.4	70.8
Chest CG	Z	G's	10.9	59.5	-14.0	103.6	13.9	72.5	-15.9	115.0
Chest CG Resultant	N/A	G's	42.9	72.0			42.6	60.3		

REDUNDANT HEAD INJURY CRITERIA (HIC)

Location	Driver				Passenger			
	HIC	T ¹	T ²	Avg G	HIC	T ¹	T ²	Avg G
Head CG Redundant	409.7	60.7	96.6	41.9	337.4	55.8	91.7	38.8

REDUNDANT CHEST CLIP (3MSEC)

Location	Driver			Passenger		
	CLIP	T ¹	T ²	CLIP	T ¹	T ²
Chest CG Redundant	42.2	70.4	73.4	41.4	65.1	68.1

DATA SHEET NO. 9
SEATBELT ASSESSMENT TEST DATA

Test Vehicle: 2002 Mazda MPV LX Minivan
 Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400
 Test Date: 5/14/02

SEAT BELT PLACEMENT MEASUREMENTS

Measurement Description	Units	Driver	Passenger
TBI - Dummy C/L to Lap/Shoulder Belt Intersect	mm	220	235
PBU -Top surface of reference to belt upper edge	mm	330	340
PBL - Top surface of reference to belt lower edge	mm	245	254
Lap Belt tension	Newton's	10	10
Shoulder Belt tension	N/A	Retractor	Retractor

BELT LENGTH DATA

Measurement Description	Units	Driver	Passenger
Retractor reel to 'D' ring	mm	750	750
Shoulder belt length as measured on ATD	mm	900	895
Lap belt length as measured on ATD	mm	900	915
Remainder of belt on reel	mm	560	700
Total belt length for continuous webbing systems	mm	3110	3260

SHOULDER BELT SPOOL-OFF DATA

Measurement Description	Units	Driver	Passenger
As determined mechanically	mm	90.0	90.0
As determined electronically	mm	129.6	139.0
As determined by photography	mm	133.0	152.0

BELT STRETCH DATA

Measurement Description	Units	Driver	Passenger
Electronically between shoulder belt load cell and "D" ring	mm/cm	*	*
Mechanically	mm/cm	None	None

*Not used with shoulder belt pre-tensioner systems.

DATA SHEET NO. 10
SUMMARY OF FMVSS 212 DATA

Test Vehicle: 2002 Mazda MPV LX Minivan
 Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400
 Test Date: 5/14/02

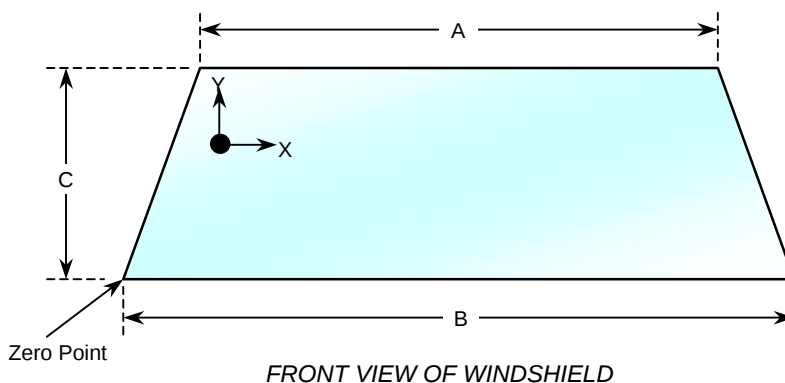
Windshield Mounting Details: Windshield glass is secured to the vehicle frame with a rubber type adhesive. No molding covers the windshield periphery at any point.

The standard requires that the posttest retention measurement be a minimum of 75 percent of the pretest total periphery measurement for vehicles not equipped with occupant passive restraints and 50 percent for each side of the windshield for vehicles that are equipped with occupant passive restraints.

Temperature of windshield molding during test: 21.1 °C

WINDSHIELD PERIPHERY MEASUREMENTS

Measurement	Pre-Test(mm)	Post-Test (mm)	% of Retention
Left Side	2285	2285	100
Right Side	2285	2285	100
Total	4569	4569	100



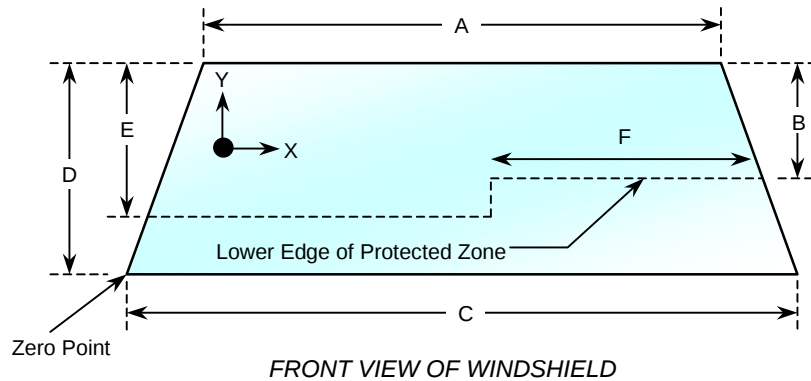
WINDSHIELD DIMENSIONS

Item	Units	Segment Length	Molding Width
A	mm	1237	12
B	mm	1544	0
C	mm	894	12

DATA SHEET NO. 11
WINDSHIELD ZONE INTRUSION FMVSS 219 DATA (PARTIAL)

Test Vehicle: 2002 Mazda MPV LX Minivan
 Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400
 Test Date: 5/14/02



**WINDSHIELD AND
PROTECTED ZONE**

Item	Units	Value
A	mm	1237
B	mm	652
C	mm	1544
D	mm	894
E	mm	638
F	mm	670

AREA OF PROTECTED ZONE FAILURES

- A. Provide coordinates of the area that the protected zone was penetrated more than 0.25 in. by a vehicle component other than one that is normally in contact with the windshield.

X	Y
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A

- B. Provide coordinates of the area beneath the protected zone that the inner surface of the windshield was penetrated by a vehicle component.

X	Y
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A

DATA SHEET NO. 12
FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA

Test Vehicle: 2002 Mazda MPV LX Minivan NHTSA No.: M25400
Test Program: 2002 NHTSA 35mph NCAP Test Date: 5/14/02

Test Time: 11:53 A.M. Temperature at Time of Impact 36.1Deg. C

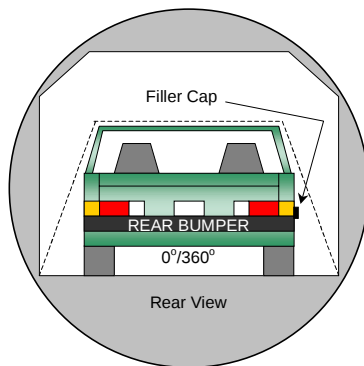
STODDARD SOLVENT SPILLAGE MEASUREMENTS

- A. From impact until vehicle motion ceases: 0.0 oz.
(Maximum Allowable = 1 ounce)
- B. For the 5 minute period after motion ceases: 0.0 oz.
(Maximum Allowable = 5 ounces)
- C. For the following 25 minutes: 0.0 oz.
(Maximum Allowable = 1 oz./minute)
- D. Spillage Location Details: No leakage occurred

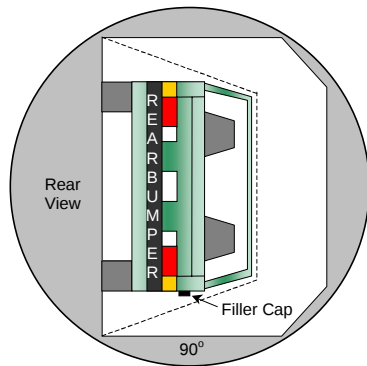
DATA SHEET NO. 13
FMVSS 301 STATIC ROLLOVER DATA

Test Vehicle: 2002 Mazda MPV LX Minivan
 Test Program: 2002 NHTSA 35mph NCAP

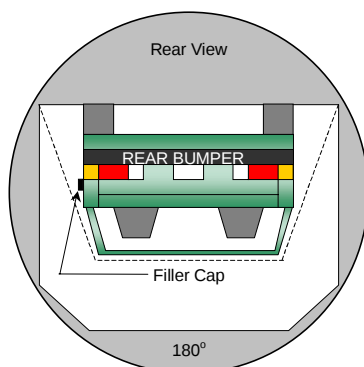
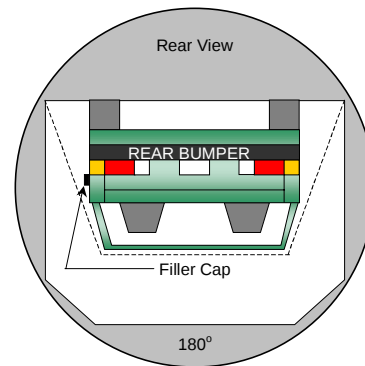
NHTSA No.: M25400
 Test Date: 5/14/02



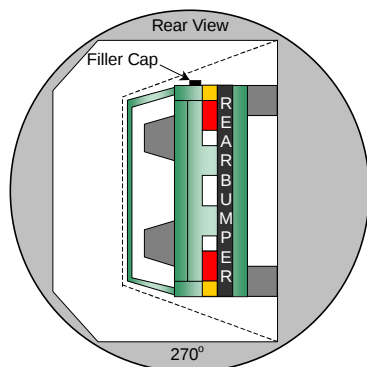
0° to 90°



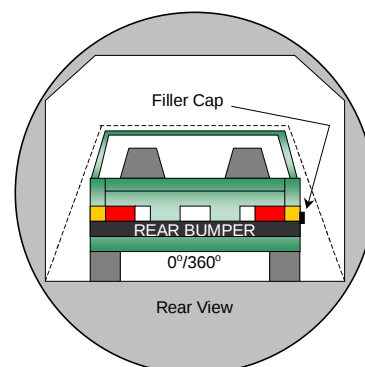
90° to 180°



180° to 270°



270° to 360°



1. The specified fixture rollover rate for each 90° of rotation is 60 to 120 seconds.
2. The position hold time at each position is 300 seconds (minimum).
3. No solvent leakage occurred during rollover.

Test Phase	Rotation Time (sec.)	Hold Time (sec.)	Spillage (oz.)
0° to 90°	80	300	0
90° to 180°	80	300	0
180° to 270°	77	300	0
270° to 360°	80	300	0

DATA SHEET NO. 14
VEHICLE MEASUREMENTS

Test Vehicle: 2002 Mazda MPV LX Minivan
Test Program: 2002 NHTSA 35mph NCAP

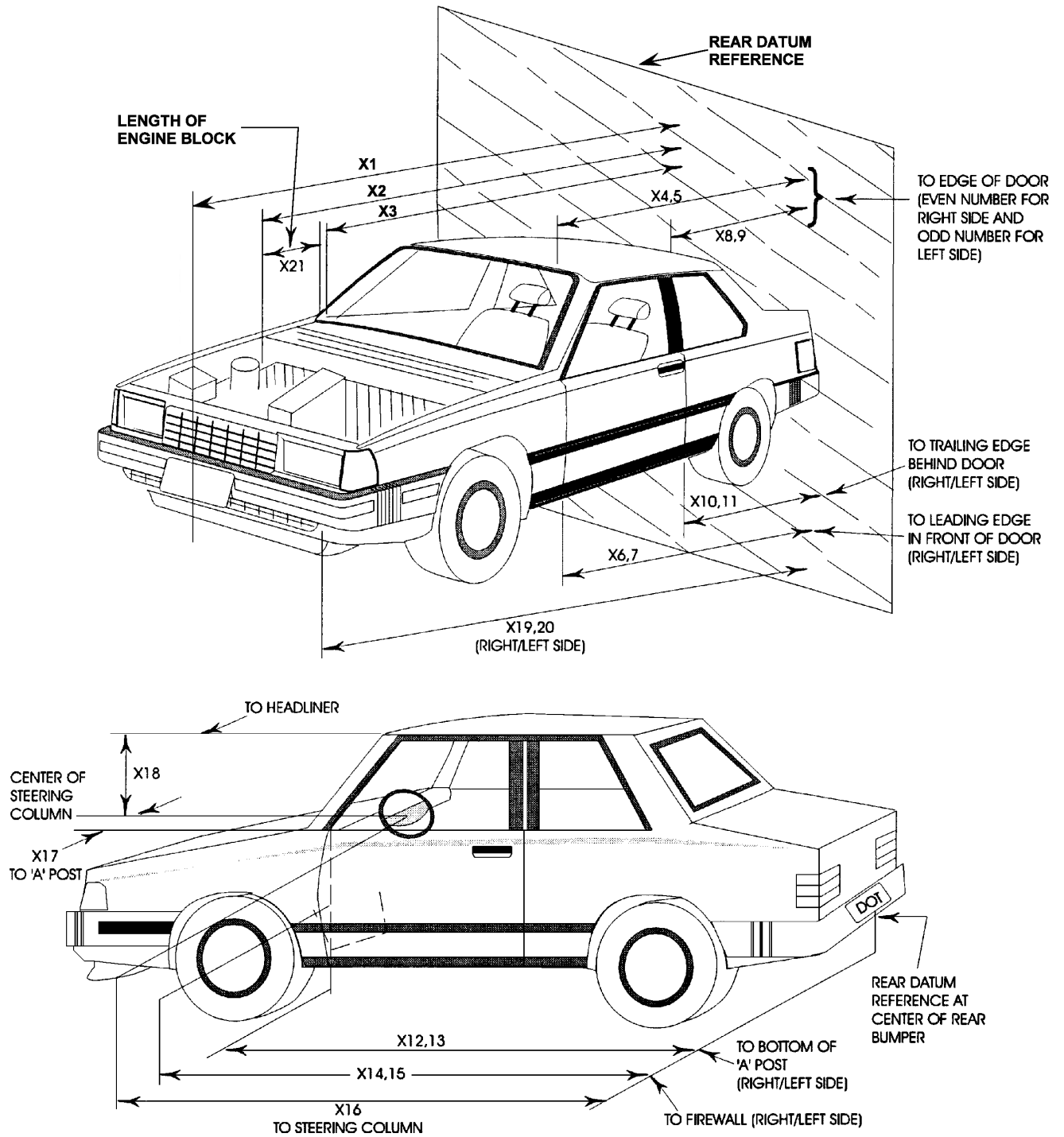
NHTSA No.: M25400
Test Date: 5/14/02

No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
1	Total length of vehicle at centerline	mm	4765	4305	-460
2	RSOV to front of engine	mm	4141	4040	-101
3	RSOV to firewall centerline	mm	3969	3890	-79
4	RSOV to leading edge of right door	mm	3379	3393	14
5	RSOV to leading edge of left door	mm	3376	3380	4
6	RSOV to lower leading edge of right door	mm	3357	3350	-7
7	RSOV to lower leading edge of left door	mm	3358	3350	-8
8	RSOV to upper trailing edge of right door	mm	2318	2330	12
9	RSOV to upper trailing edge of left door	mm	2314	2320	6
10	RSOV to lower trailing edge of right door	mm	2356	2351	-5
11	RSOV to lower trailing edge of left door	mm	2356	2350	-6
12	RSOV to bottom of right 'A' pillar	mm	3358	3361	3
13	RSOV to bottom of left 'A' pillar	mm	3304	3356	52
14	RSOV to firewall on right side	mm	3738	3605	-133
15	RSOV to firewall of left side	mm	3740	3628	-112
16	RSOV to steering column	mm	2927	2900	-27
17	Center of steering column to left 'A' pillar	mm	409	430	21
18	Center of steering column to headlining	mm	510	460	-50
19	RSOV to right side of front bumper	mm	4635	4194	-441
20	RSOV to left side of front bumper	mm	4635	4180	-455
21	Length of engine block	mm	450	450	0
RD	RSOV to right side of dash panel	mm	3139	3115	-24
CD	RSOV to center of dash panel	mm	3148	3103	-45
LD	RSOV to left side of dash panel	mm	3141	3120	-21

DATA SHEET NO. 14...(CONTINUED)
VEHICLE MEASUREMENTS

Test Vehicle: 2002 Mazda MPV LX Minivan
 Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400
 Test Date: 5/14/02



DATA SHEET NO. 15
CAMERA LOCATIONS

Test Vehicle: 2002 Mazda MPV LX Minivan
Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400
Test Date: 5/14/02

No.	Camera View	Location (mm)			Angle (Deg.)	Film Plane to Head	Lens (mm)	Speed (fps)
		X	Y	Z				
1	Right Side, Real Time	3454	10973	1245	0	1651	Zoom	24
2	Left Side, No. 1	2000	-8250	1270	0	7886	13	1030
3	Left Side, No. 2	1060	-6370	1630	-1	6131	25	1010
4	Left Side, No. 3	6500	-10580	4640	-16	11524	65	990
5	Left Side, No. 4	1460	-8250	3340	-17	8170	19	1000
6	Left Side, No. 5	1460	-8250	2970	-16	8088	19	910
7	Right Side, No. 1	2400	8150	1590	-2	7784	15	N/A
8	Right Side, No. 2	1000	7180	1590	0	6935	35	1020
9	Right Side, No. 3	7860	8900	2800	-9	10290	80	980
10	Right Side, No. 4	2750	9600	1520	0	9243	50	N/A
11	Overhead Overall	250	0	4460	-86	N/A	13	1090
12	Front View, Driver	2970	-380	1330	-36	N/A	12	860
13	Front View, Passenger	2970	380	1330	-37	N/A	13	1100
14	Pit Camera, Engine	650	0	-1360	-90	N/A	10	N/A
15	Pit Camera, Fuel Tank	3760	0	-1820	-55	N/A	10	N/A
16	Driver Belt	2840	-280	1410	-4	N/A	13	N/A
17	Passenger Belt	2840	200	1410	-4	N/A	13	N/A
18	Left Side Extra							

X - Barrier Face Y - Monorail Centerline Z - Ground

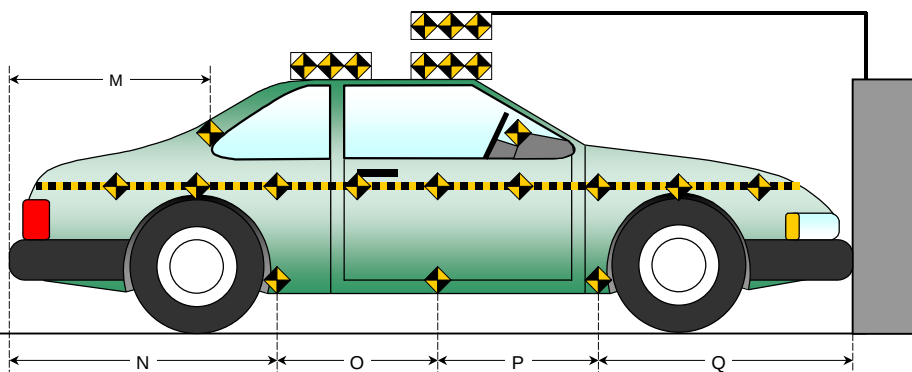
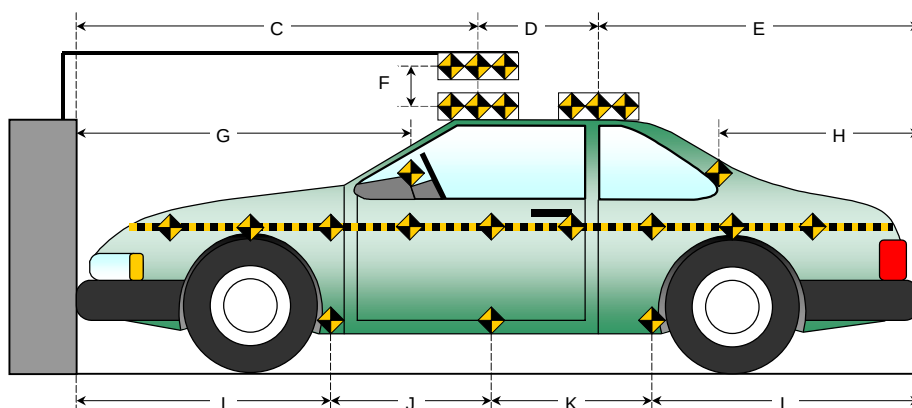
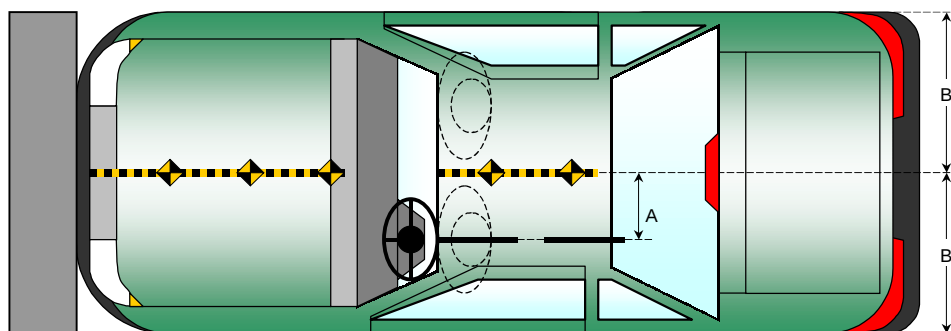
DATA SHEET NO. 16 **PHOTOGRAPHIC REFERENCE TARGET LOCATIONS**

Test Vehicle: 2002 Mazda MPV LX Minivan
 Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400
 Test Date: 5/14/02

All Dimensions
 in mm

Item	Value
A	403
B	913
C	2194
D	606
E	1979
F	155
G	1655
H	1305
I	1393
J	960
K	960
L	1456
M	1306
N	1466
O	958
P	958
Q	1385



DATA SHEET NO. 17
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2002 Mazda MPV LX Minivan
 Test Program: 2002 NHTSA 35mph NCAP

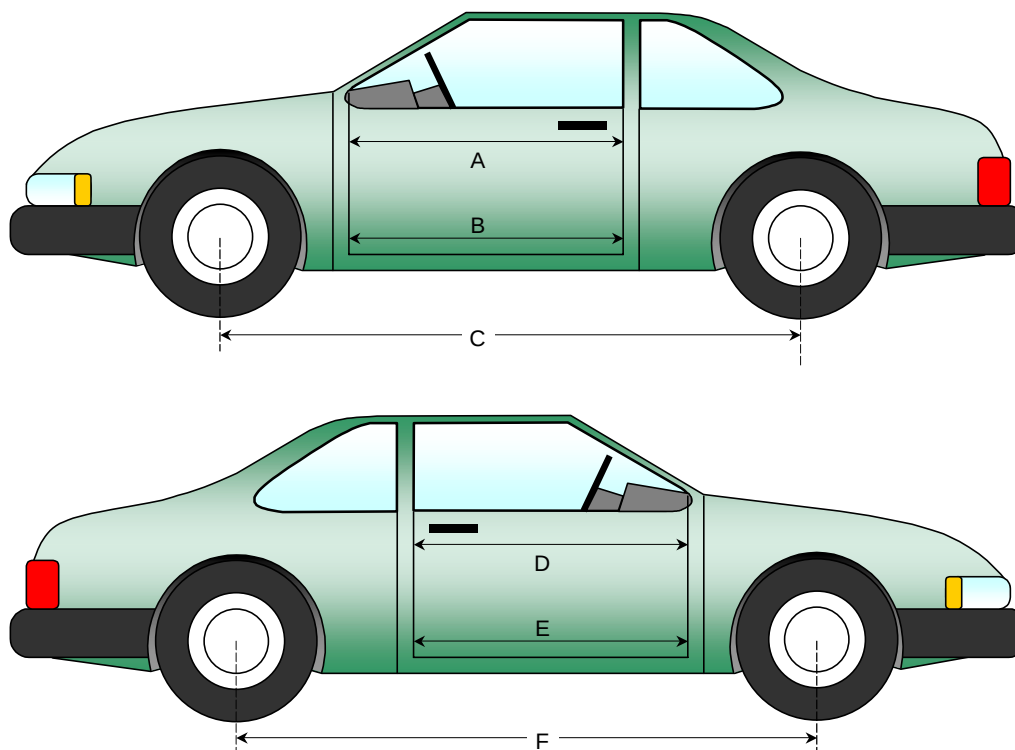
NHTSA No.: M25400
 Test Date: 5/14/02

DOOR OPENING WIDTH

Item	Description	Units	Pre-Test	Post-Test	Difference
A	Left Side Upper	mm	961	954	-7
B	Left Side Lower	mm	925	919	-6
D	Right Side Upper	mm	961	958	-3
E	Right Side Lower	mm	899	894	-5

WHEELBASE MEASUREMENTS

Item	Description	Units	Pre-Test	Post-Test	Difference
C	Left Side Wheel base	mm	2837	2770	-67
F	Right Side Wheel base	mm	2837	2850	13



DATA SHEET NO. 17...(CONTINUED)
VEHICLE INTRUSION MEASUREMENTS

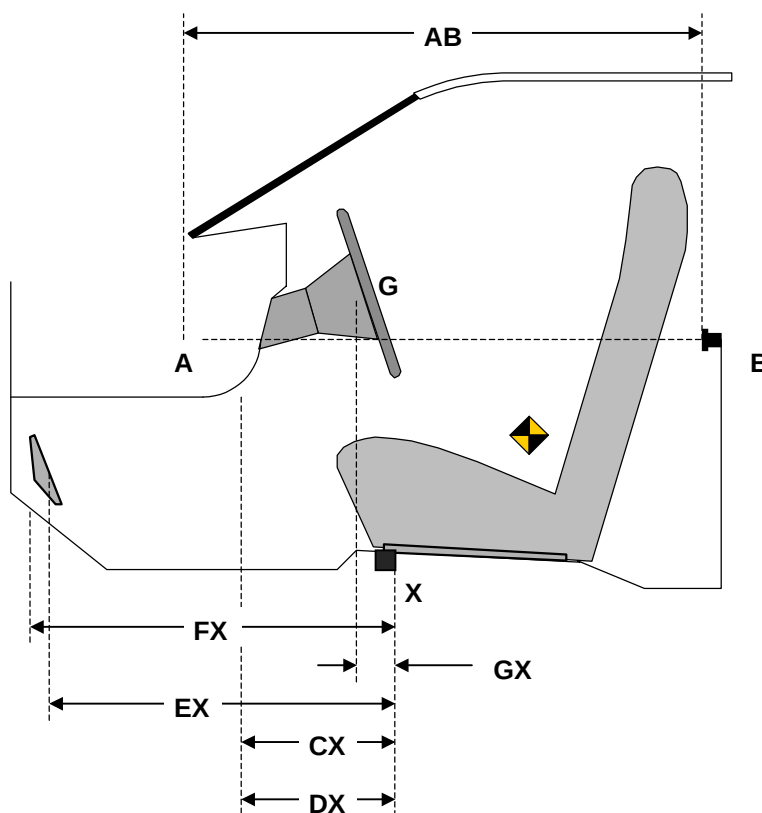
Test Vehicle: 2002 Mazda MPV LX Minivan
 Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400
 Test Date: 5/14/02

DRIVER COMPARTMENT INTRUSION

Item	Description	Units	Pre-Test	Post-Test	Difference
AB	Door Opening (Inside window jam)	mm	961	954	-7
CX	Left Knee Bolster to X	mm	261	265	4
DX	Right Knee Bolster to X	mm	255	290	35
EX	Brake Pedal to X	mm	551	410	-141
FX	Foot Rest to X	mm	527	545	18
GX	Center of Steering Wheel Hub to X	mm	74	40	-34

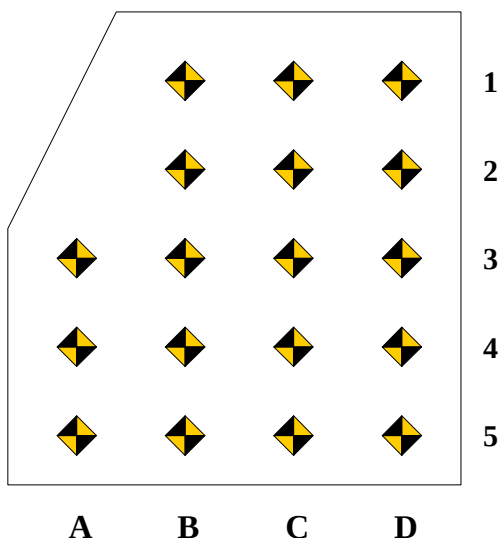
X = Left Front Seat Outboard Anchor Bolt Head



DATA SHEET NO. 17...(CONTINUED)
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2002 Mazda MPV LX Minivan
 Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400
 Test Date: 5/14/02



Measurement reference point for X and Z-axis is the forward outboard seat mounting bolt.

Columns A through D are evenly spaced.

Rows 1 and 2 are on the toe kick portion of the floor pan. Rows 3,4 and 5 are located on the most level portion of the floor pan.

Row 3 will be at the intersection of the toe kick and the level sections of the floor pan.

DRIVER FLOOR PAN X-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1		657	637	638		573	550	562		-84	-87	-76
2		563	555	551		571	565	547		8	10	-4
3	474	462	454	451	440	435	429	408	-34	-27	-25	-43
4	374	362	357	352	372	366	356	346	-2	4	-1	-6
5	274	262	257	252	270	267	265	250	-4	5	8	-2

DRIVER FLOOR PAN Z-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1		2	-1	-6		27	-25	-32		25	-24	-26
2		-51	-53	-51		-78	-95	-107		-27	-42	-56
3	-56	-51	-53	-51	-87	-109	-126	-132	-31	-58	-73	-81
4	-53	-51	-51	-53	-55	-68	-76	-85	-2	-17	-25	-32
5	-56	-59	-56	-59	-57	-78	-80	-87	-1	-19	-24	-28

DATA SHEET NO. 17...(CONTINUED)
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2002 Mazda MPV LX Minivan
 Test Program: 2002 NHTSA 35mph NCAP

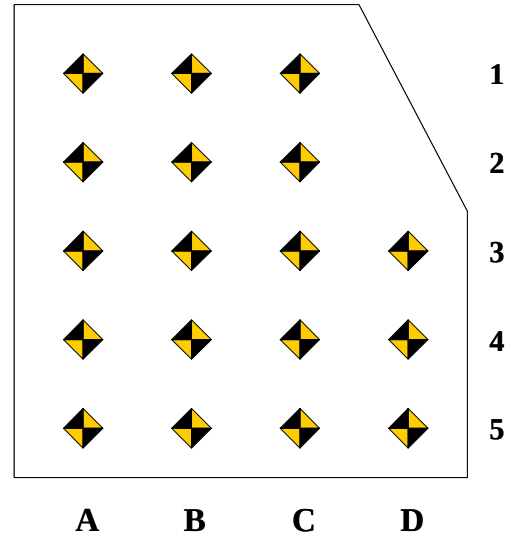
NHTSA No.: M25400
 Test Date: 5/14/02

Measurement reference point for X and Z axis is the forward outboard seat mounting bolt.

Columns A through D are evenly spaced.

Rows 1 and 2 are on the toe kick portion of the floor pan. Rows 3,4, and 5 are located on the most level portion of the floor pan.

Row 3 will be at the intersection of the toe kick and the level sections of the floor pan.



PASSENGER FLOOR PAN X-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	615	633	635	0	592	602	601	0	-23	-31	-34	0
2	517	533	535	0	518	528	540	0	1	-5	5	0
3	418	433	435	436	422	432	444	453	4	-1	9	17
4	316	331	333	336	324	327	330	351	8	-4	-3	15
5	215	230	232	236	220	232	242	254	5	2	10	18

PASSENGER FLOOR PAN Z-AXIS

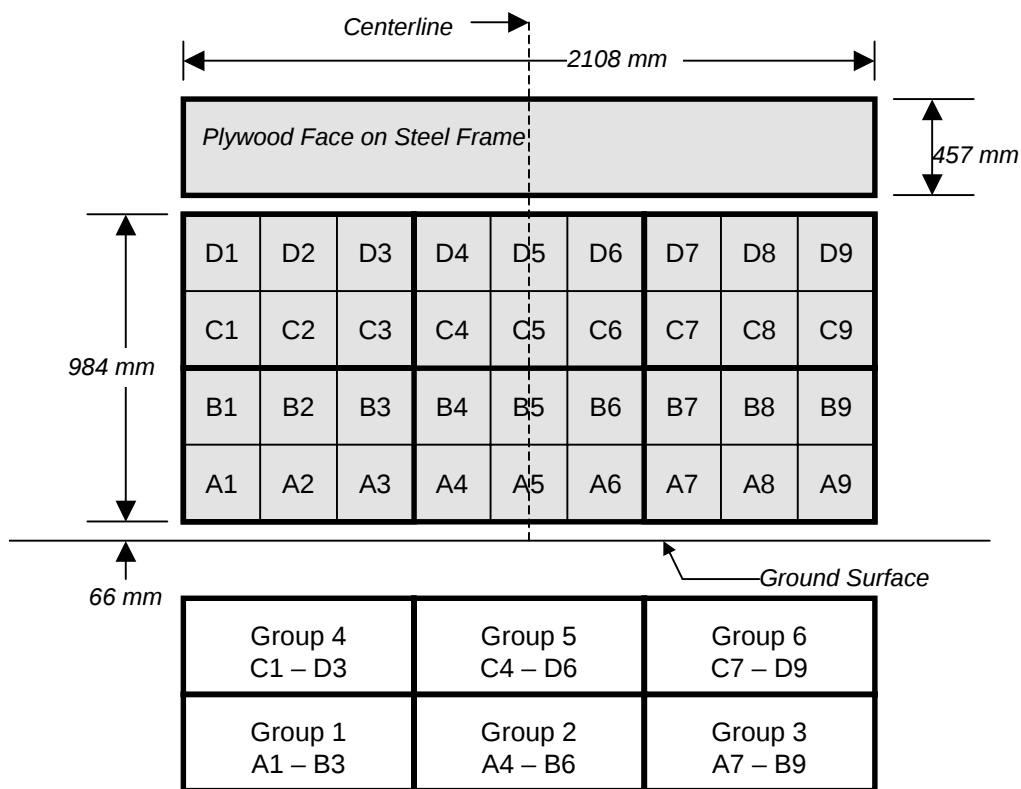
	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	-3	-4	-7	0	-48	-42	-22	0	-45	-38	-15	0
2	-38	-44	-48	0	-79	-83	-80	0	-41	-39	-32	0
3	-54	-52	-56	-54	-87	-81	-71	-60	-33	-29	-15	-6
4	-49	-49	-51	-48	-86	-77	-71	-63	-37	-28	-20	-15
5	-46	-59	-54	-62	-93	-80	-76	-70	-47	-21	-22	-8

DATA SHEET NO. 18
FIXED BARRIER LOAD CELL LOCATIONS

Test Vehicle: 2002 Mazda MPV LX Minivan
 Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400
 Test Date: 5/14/02

36 Load Cell Rigid Barrier (NHTSA Standard)
Load Cell Locations on Fixed Barrier



6 Groups of 6 Load Cells Each

The Data is presented in Appendix C with the following requirements:

- 1.) Data from 36 individual load cells
- 2.) Sum data from 6 groupings shown above (6 cells/group)
- 3.) Total or sum of all 36 individual load cells
- 4.) Sum of all 36 individual load cells vs. vehicle dynamic crush

DATA SHEET NO. 19
ACCIDENT INVESTIGATION DIVISION DATA

Test Vehicle: 2002 Mazda MPV LX Minivan
 Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400
 Test Date: 5/14/02

VEHICLE INFORMATION

VIN: JM3LW28A420319819
 Vehicle Size Category: 5-Door

Wheel base (mm): 2837
 Test Weight (kg): 1973

ACCELEROMETER DATA

Accelerometer Location: Left rear floor pan
 Cal. Procedure/Interval: 6 months / drop test
 Integration Algorithm: NHTSA Standard
 Impact Velocity (km/h): 55.82
 Velocity Change (km/h): 64.3

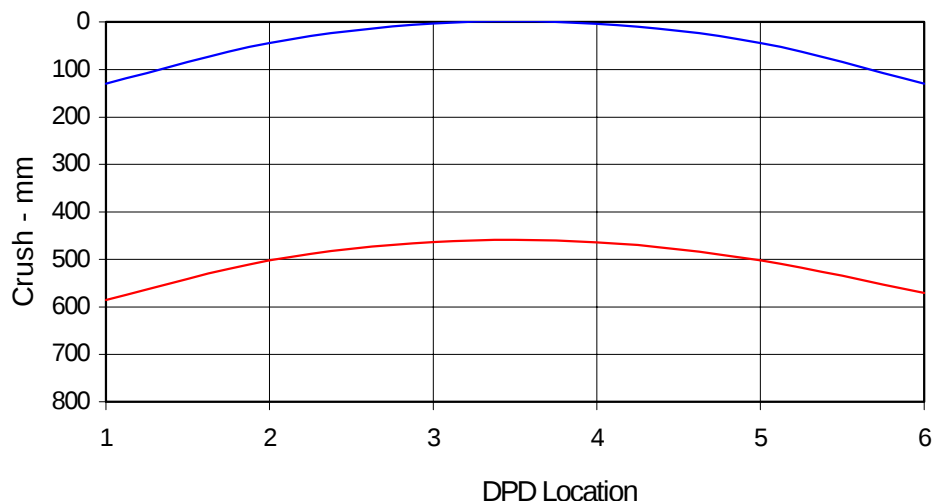
Linearity: Good
 Time of Separation (msec): 67.3

CRUSH PROFILE

Collision Deformation Classification: 12FDEW6
 Damage Region Length (mm): 1386

Midpoint of Damage: Vehicle Centerline
 Impact Mode: Full Frontal

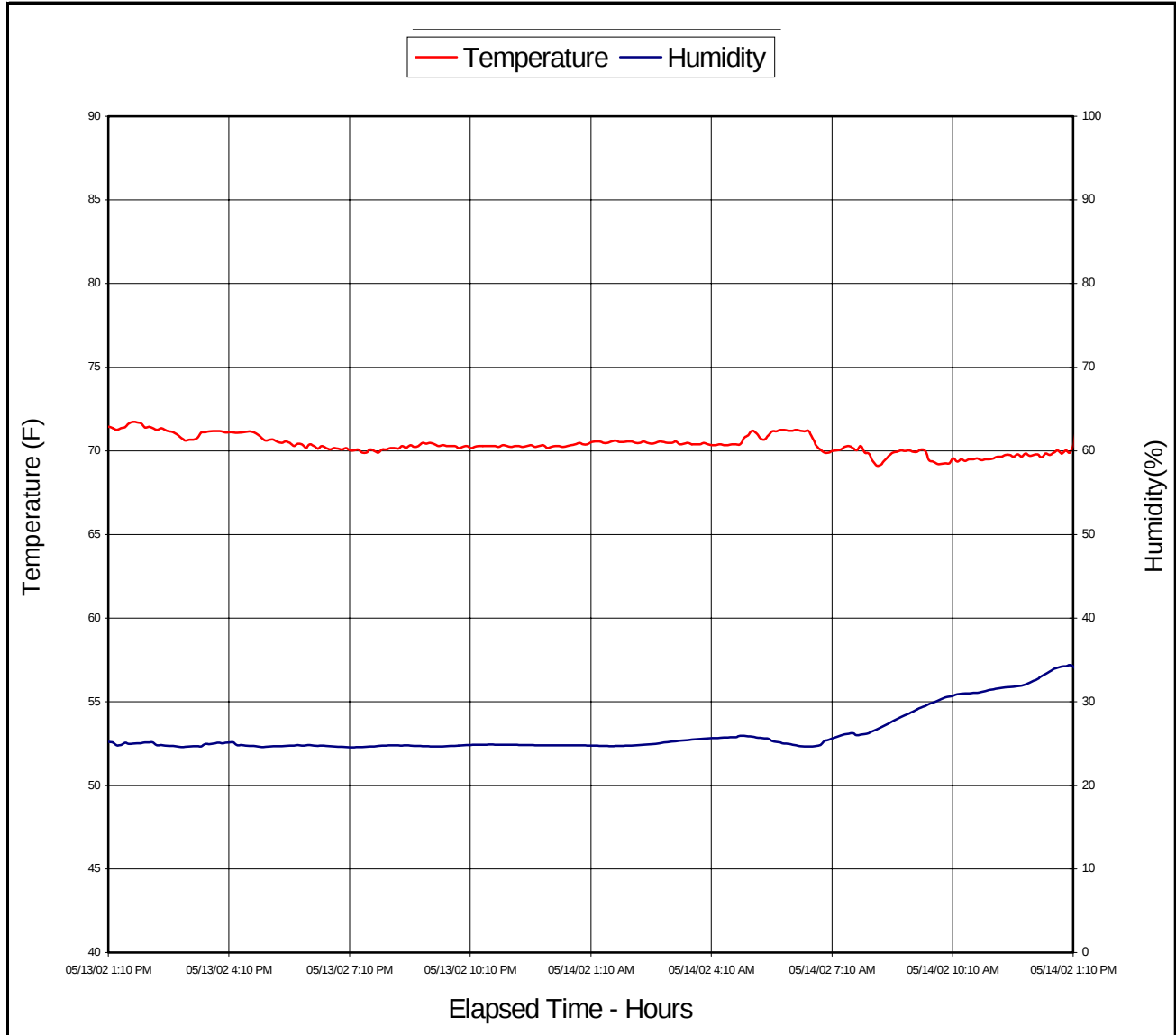
No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
C1	Crush zone 1 at left side	mm	130	585	-455
C2	Crush zone 2 on left side	mm	44	502	-458
C3	Crush zone 3 on left side	mm	3	463	-460
C4	Crush zone 4 on right side	mm	4	464	-460
C5	Crush zone 5 on right side	mm	44	502	-458
C6	Crush zone 6 at right side	mm	130	571	-441



DATA SHEET NO. 20
DUMMY/VEHICLE TEMPERATURE STABILIZATION

Test Vehicle: 2002 Mazda MPV LX Minivan
Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400
Test Date: 5/14/02



APPENDIX A

PHOTOGRAPHS

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Figure A-1: Right Front, as Received



Figure A-2: Left Rear, as Received

MFD. BY MAZDA MOTOR CORPORATION

DATE	GVWR/PNBV	GAWR/PNBE FRT	GAWR/PNBE RR
03/02	5229 LB	2601 LB	2676 LB
	2372 KG	1180 KG	1214 KG

THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY
AND THEFT PREVENTION
STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE.

JM3LW28A420319819 TYPE: MPV



BODY COLOR CODE: 24V

MADE IN JAPAN

Figure A-3: Vehicle Certification Label



Figure A-4: Vehicle Tire Label



Figure A-5: Front View, Pre-Test



Figure A-6: Front View, Post-Test



Figure A-7: Left Side View, Pre-Test



Figure A-8: Left Side View, Post-Test



Figure A-9: Right Side View, Pre-Test



Figure A-10: Right Side View, Post-Test



Figure A-11: Right Front View, Pre-Test



Figure A-12: Right Front View, Post-Test



Figure A-13: Left Rear View, Pre-Test



Figure A-14: Left Rear View, Post-Test



Figure A-15: Windshield, Pre-Test



Figure A-16: Windshield, Post-Test



Figure A-17: Engine Compartment, Pre-Test

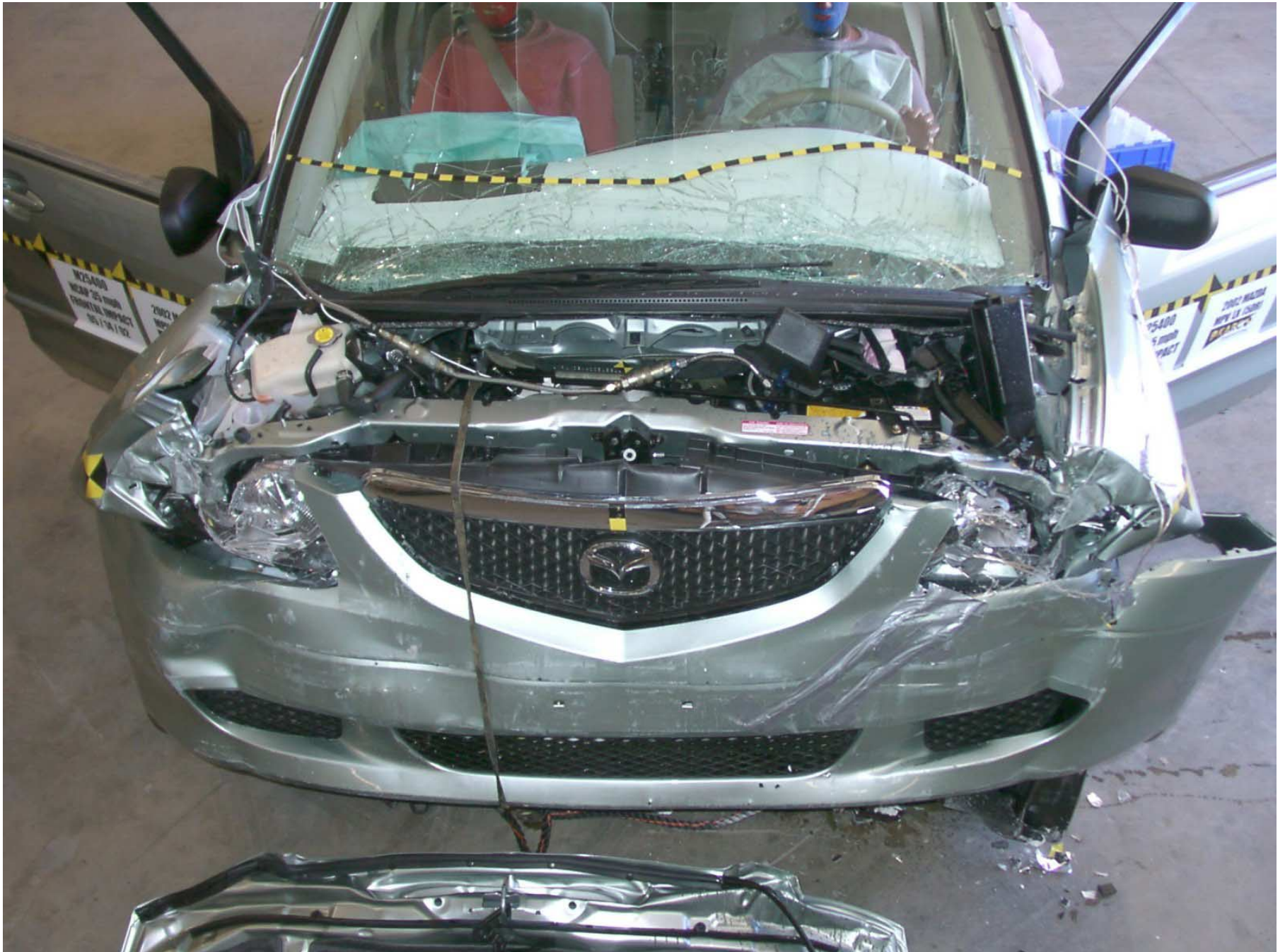


Figure A-18: Engine Compartment, Post-Test



Figure A-19: Fuel Cap, Pre-test



Figure A-20: Fuel Cap, Post-Test

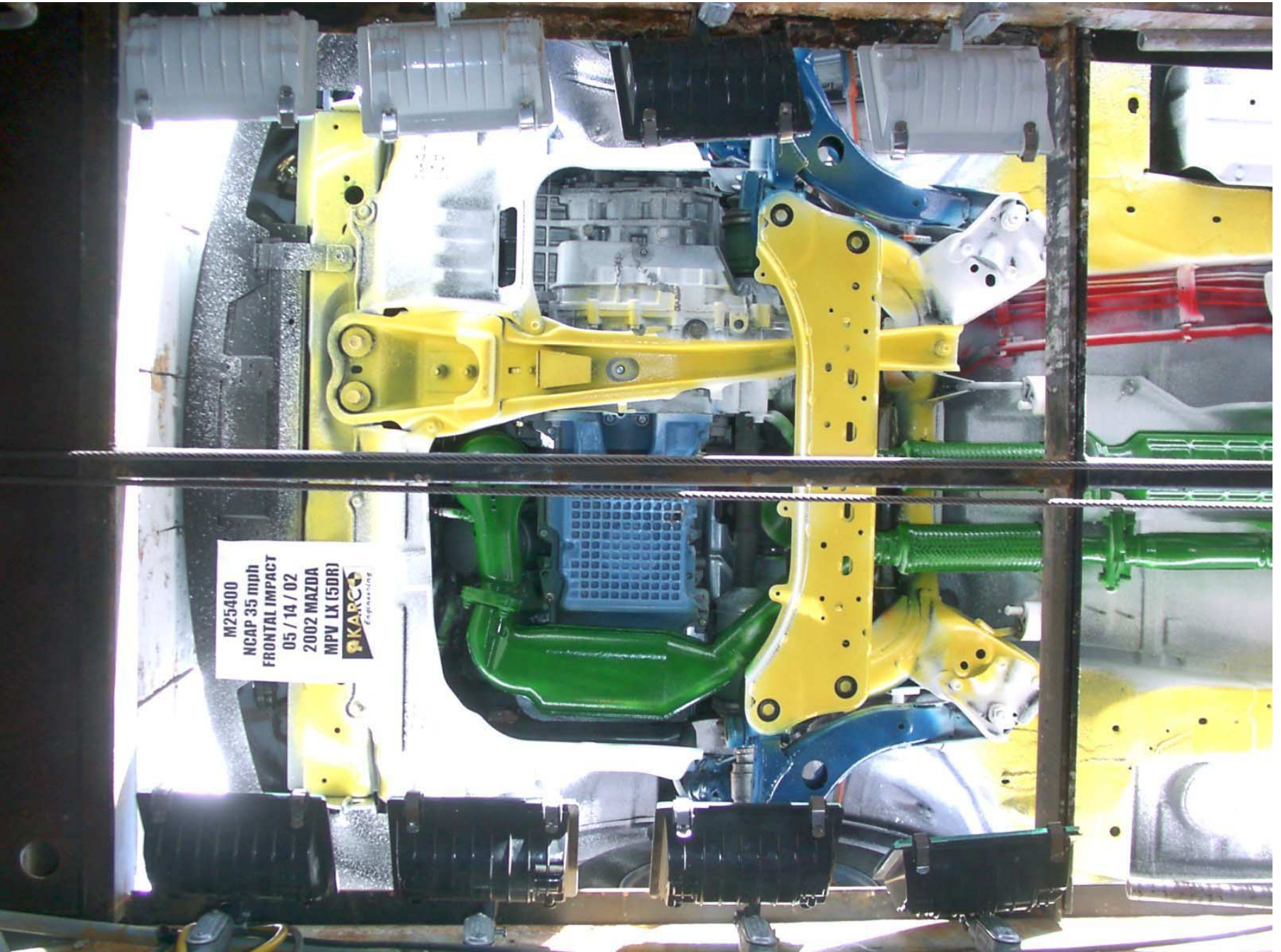


Figure A-21: Front Underside, Pre-Test

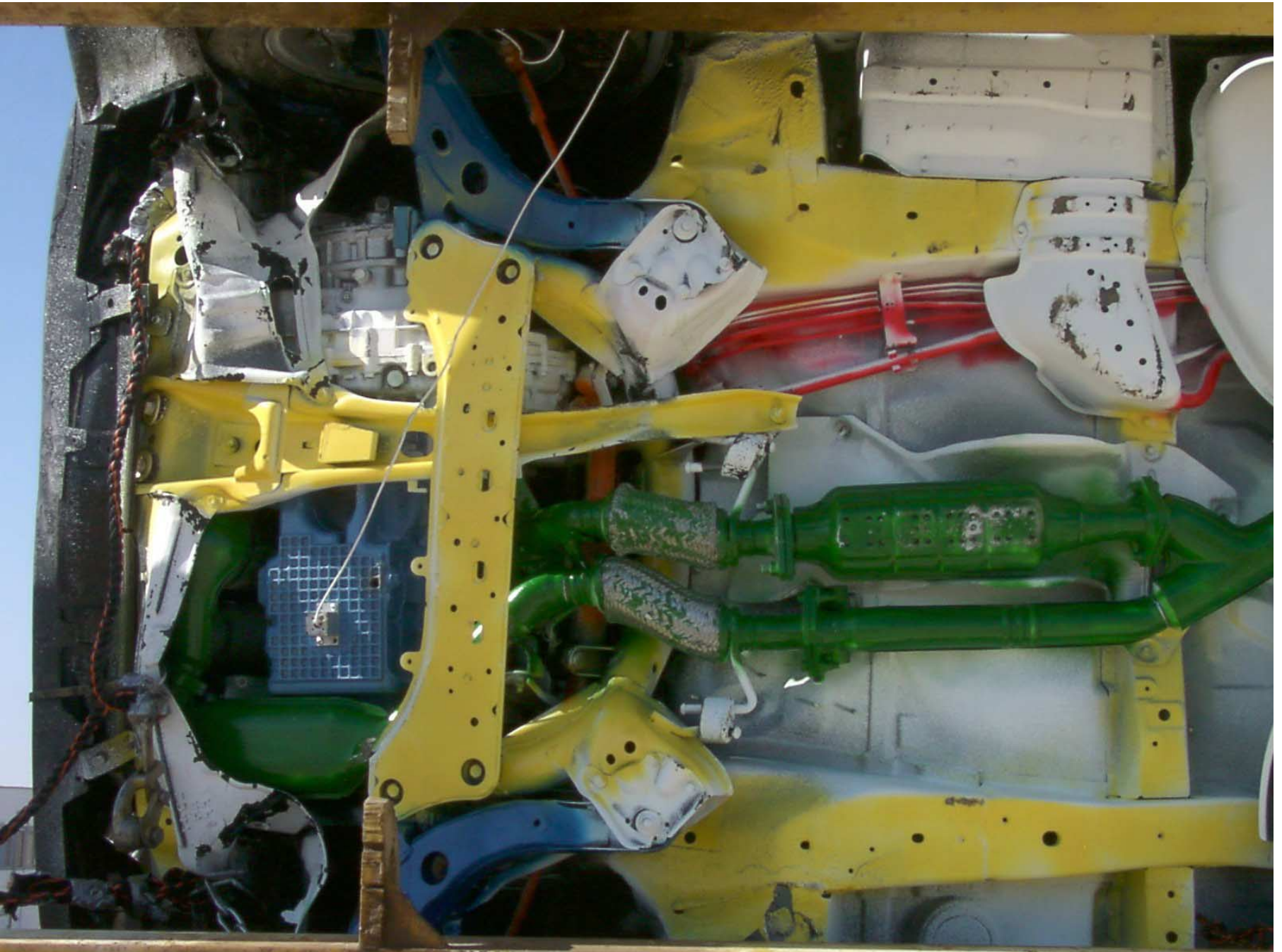


Figure A-22: Front Underside, Post-Test

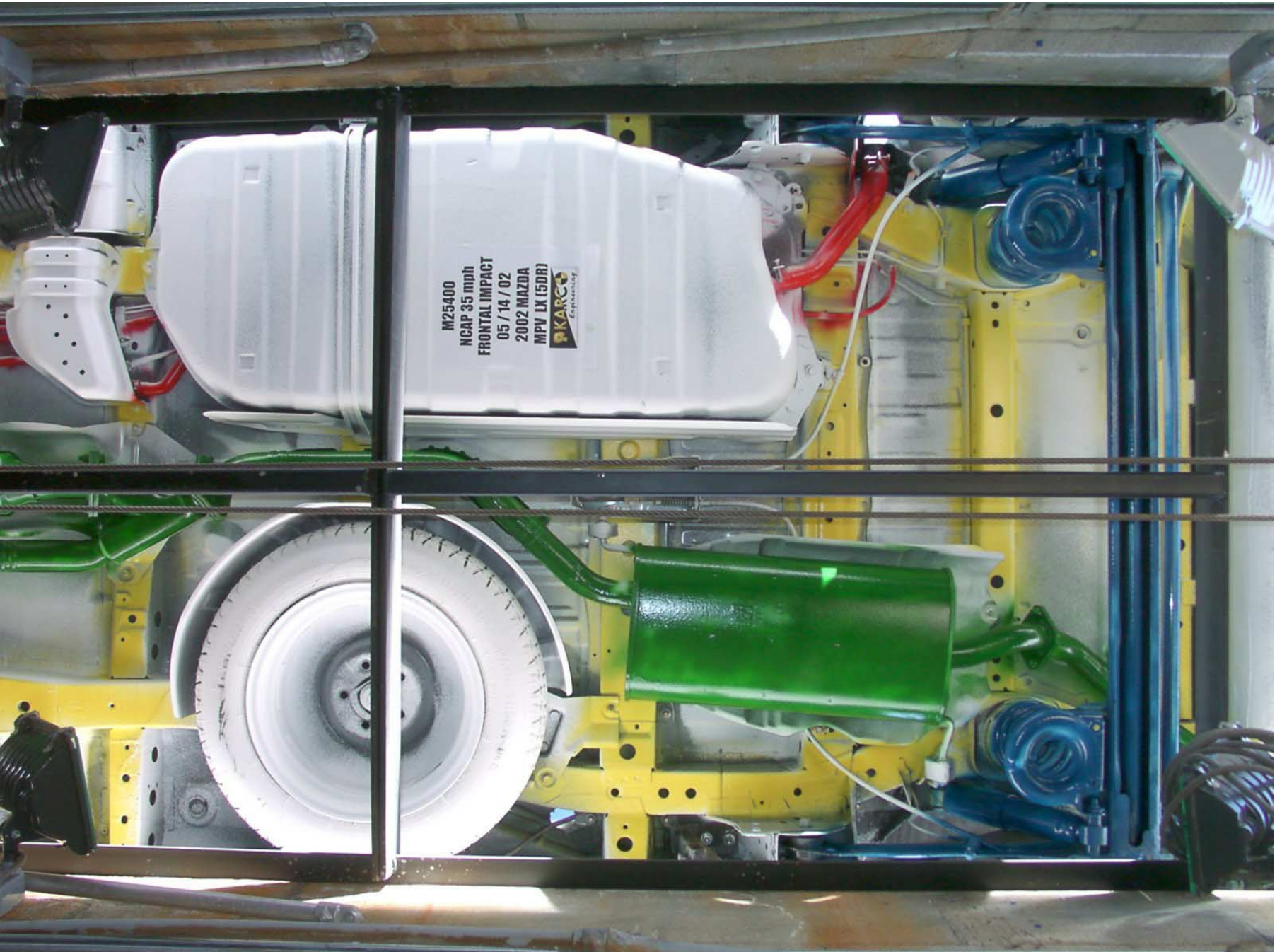


Figure A-23: Rear Underside, Pre-Test



Figure A-24: Rear Underside, Post-Test

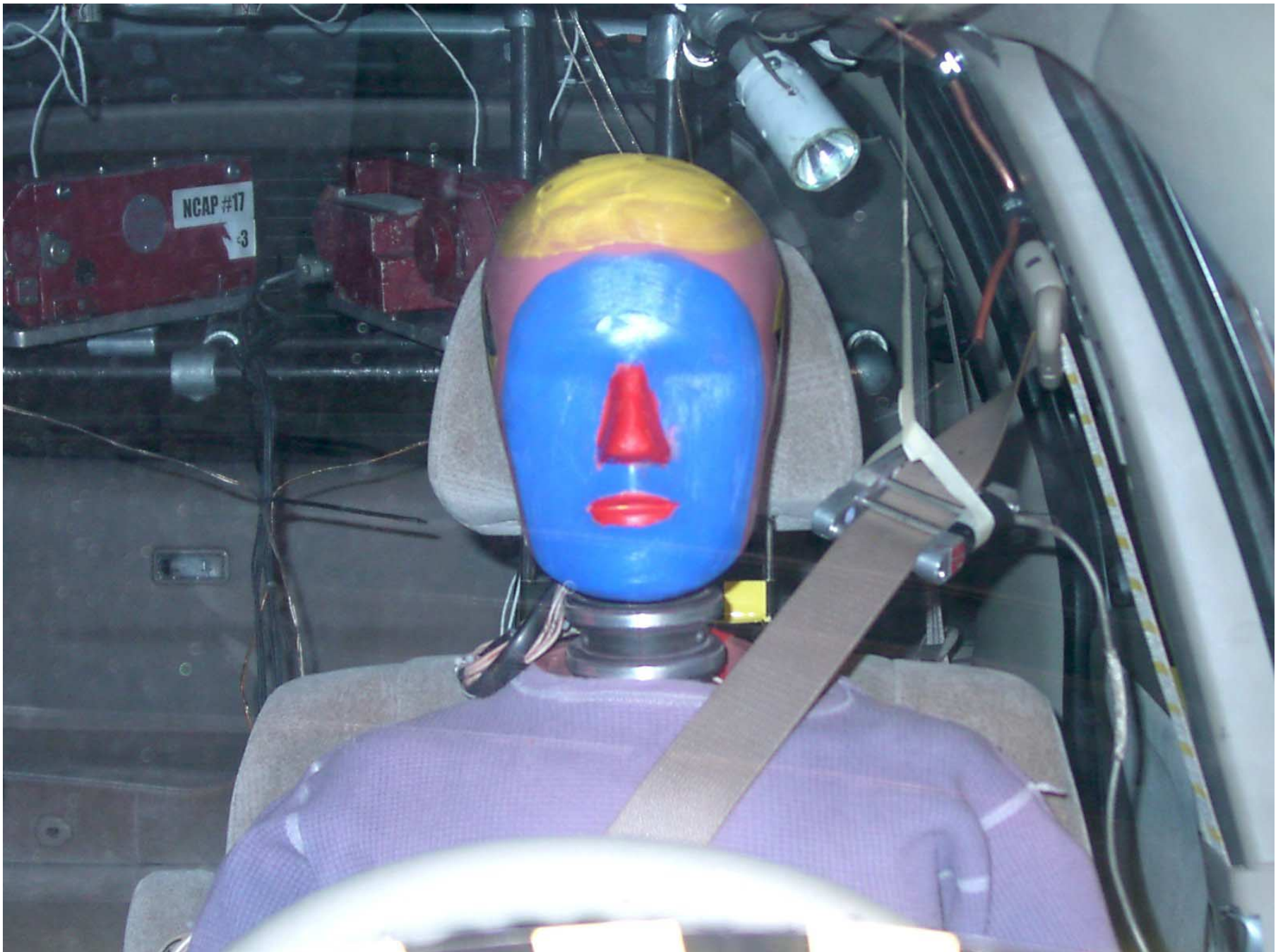


Figure A-25: Driver Dummy Front View, Pre-Test



Figure A-26: Driver Dummy Front View, Post-Test



Figure A-27: Driver Dummy Through Window, Pre-Test



Figure A-28: Driver Dummy Through Window, Post-Test



Figure A-29: Driver Dummy Door Open, Pre-Test



Figure A-30: Driver Dummy Door Open, Post-Test



Figure A-31: Driver Dummy 90° To Vehicle, Pre-Test



Figure A-32: Driver Dummy 90° To Vehicle, Post-Test



Figure A-33: Driver Dummy Feet, Pre-Test



Figure A-34: Driver Dummy Feet and Knee Contact, Post-Test



Figure A-35: Driver Side Knee Bolster, Pre-Test



Figure A-36: Driver Side Knee Bolster, Post-Test



Figure A-37: Driver Side Floor Pan, Pre-Test



Figure A-38: Driver Side Floor Pan, Post-Test



Figure A-39: Driver Dummy Head, Post-Test



Figure A-40: Driver Dummy Contact, Post-Test



Figure A-41: Passenger Dummy Front View, Pre-Test



Figure A-42: Passenger Dummy Front View, Post-Test



Figure A-43: Passenger Dummy Through Window, Pre-Test



Figure A-44: Passenger Dummy Through Window, Post-Test



Figure A-45: Passenger Dummy Door Open, Pre-Test



Figure A-46: Passenger Dummy Door Open, Post-Test



Figure A-47: Passenger Dummy 90° To Vehicle, Pre-Test



Figure A-48: Passenger Dummy 90° To Vehicle, Post-Test



Figure A-49: Passenger Dummy Feet, Pre-Test



Figure A-50: Passenger Dummy Feet and Knee Contact, Post-Test



Figure A-51: Passenger Side Floor Pan, Pre-Test



Figure A-52: Passenger Side Floor Pan, Post-Test



Figure A-53: Passenger Side Knee Bolster, Pre-Test



Figure A-54: Passenger Side Knee Bolster, Post-Test



Figure A-55: Passenger Head, Post-Test



Figure A-56: Passenger Dummy Contact, Post-Test



Figure A-57: ³⁴Left Rear View of Doors Closed After Impact



Figure A-58: ³/₄Right Rear View of Doors Closed After Impact



Figure A-59: Vehicle on Rollover Device



Figure A-60: Vehicle During Impact

APPENDIX B

DATA PLOTS

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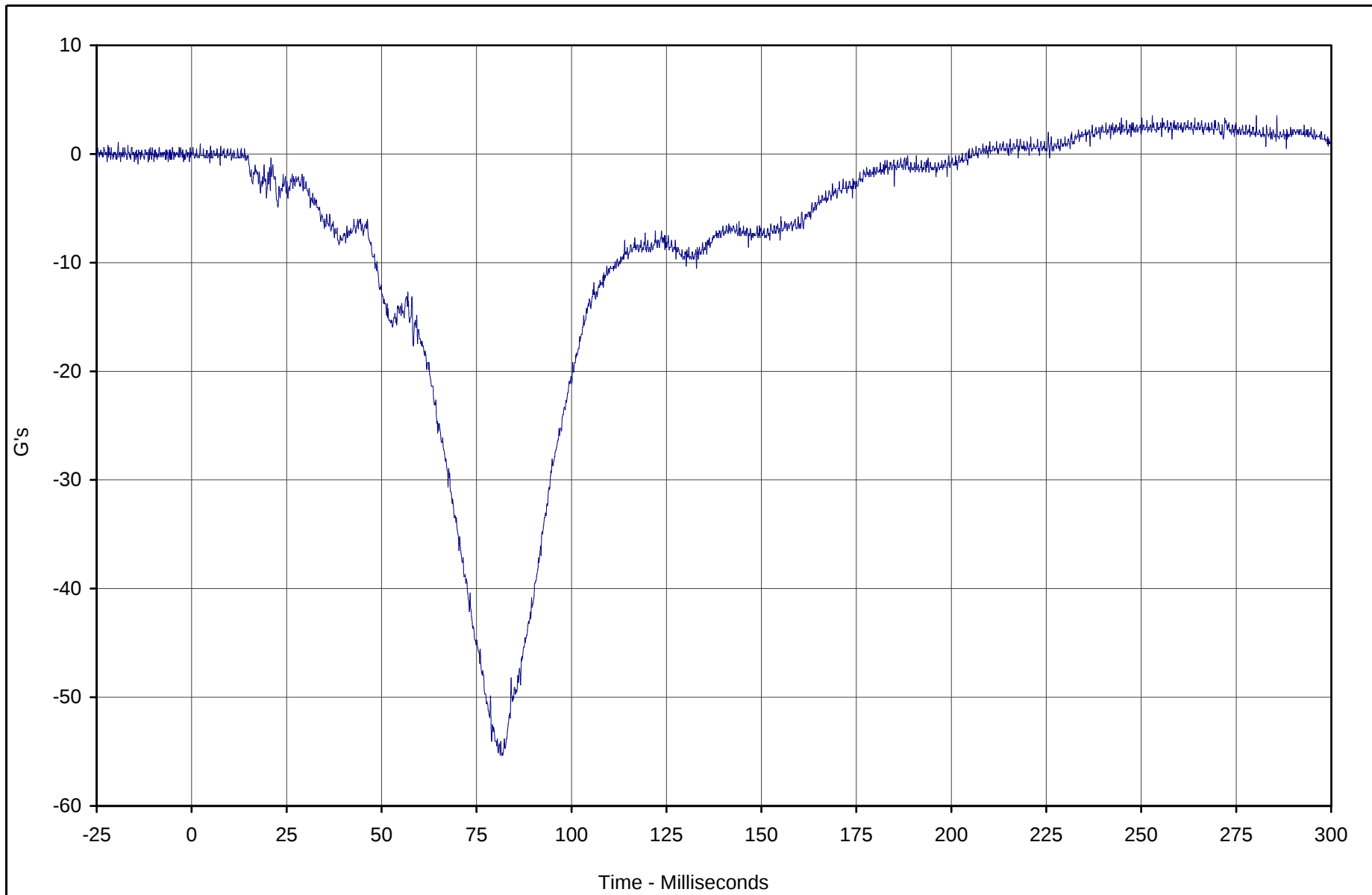
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Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Head Primary X	001	FIL	G's	3.5	252.9	-55.3	81.2	1000

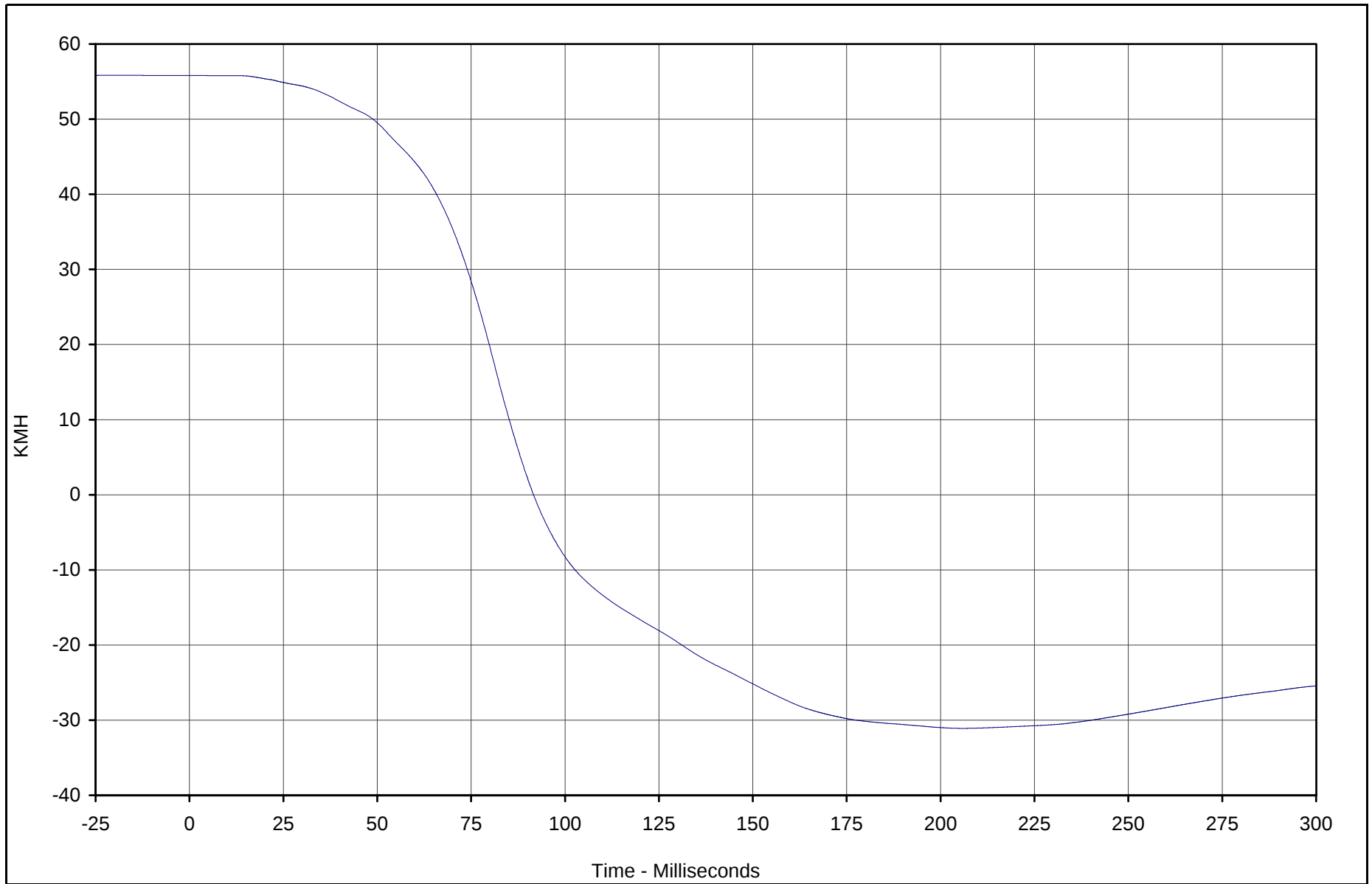


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Head Primary X Velocity	001	IN1	KMH	55.8	0.5	-31.1	205.8	180

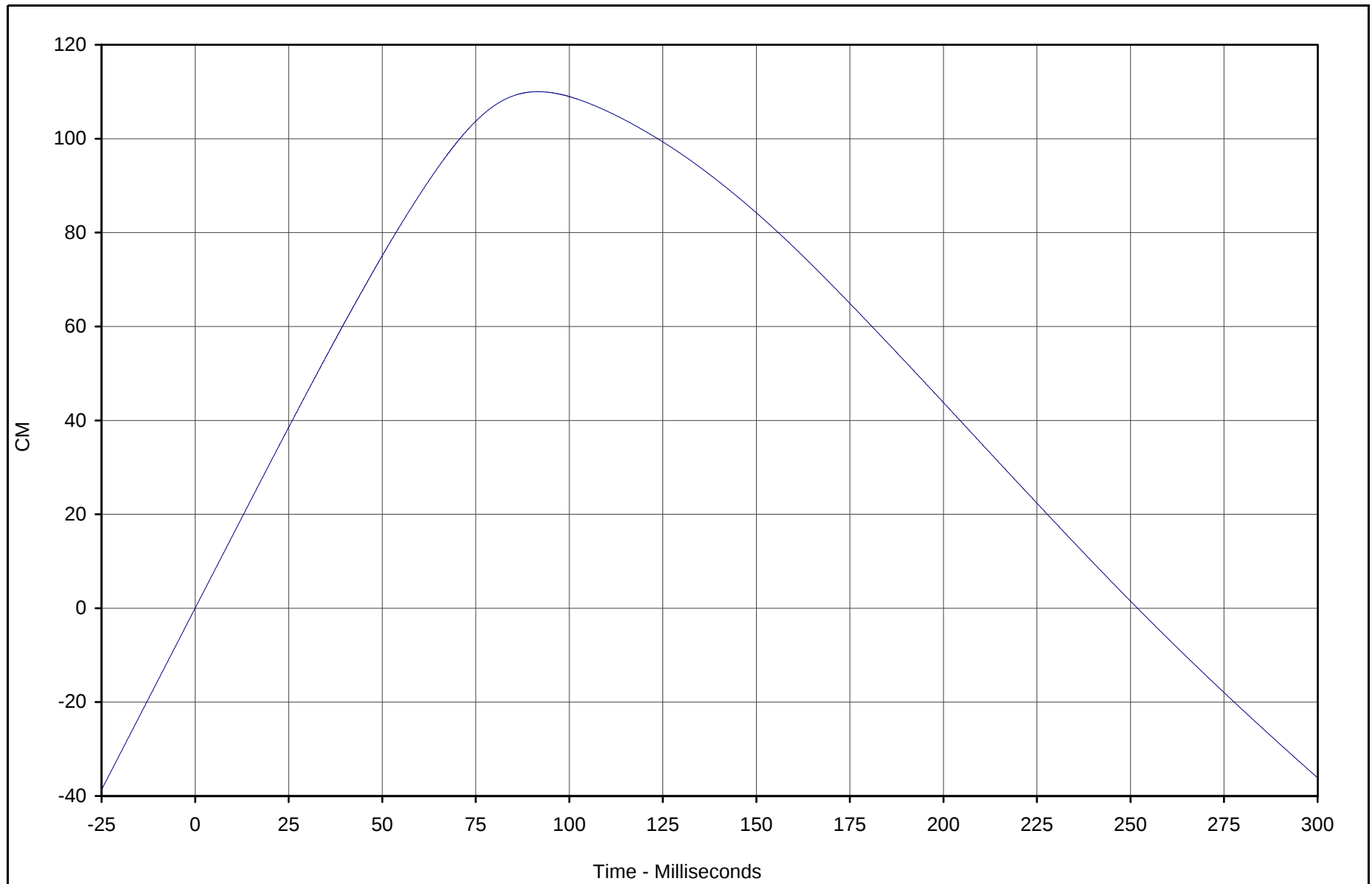


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Head Primary X Displ.	001	IN2	CM	110.0	91.6	-36.1	299.9	180

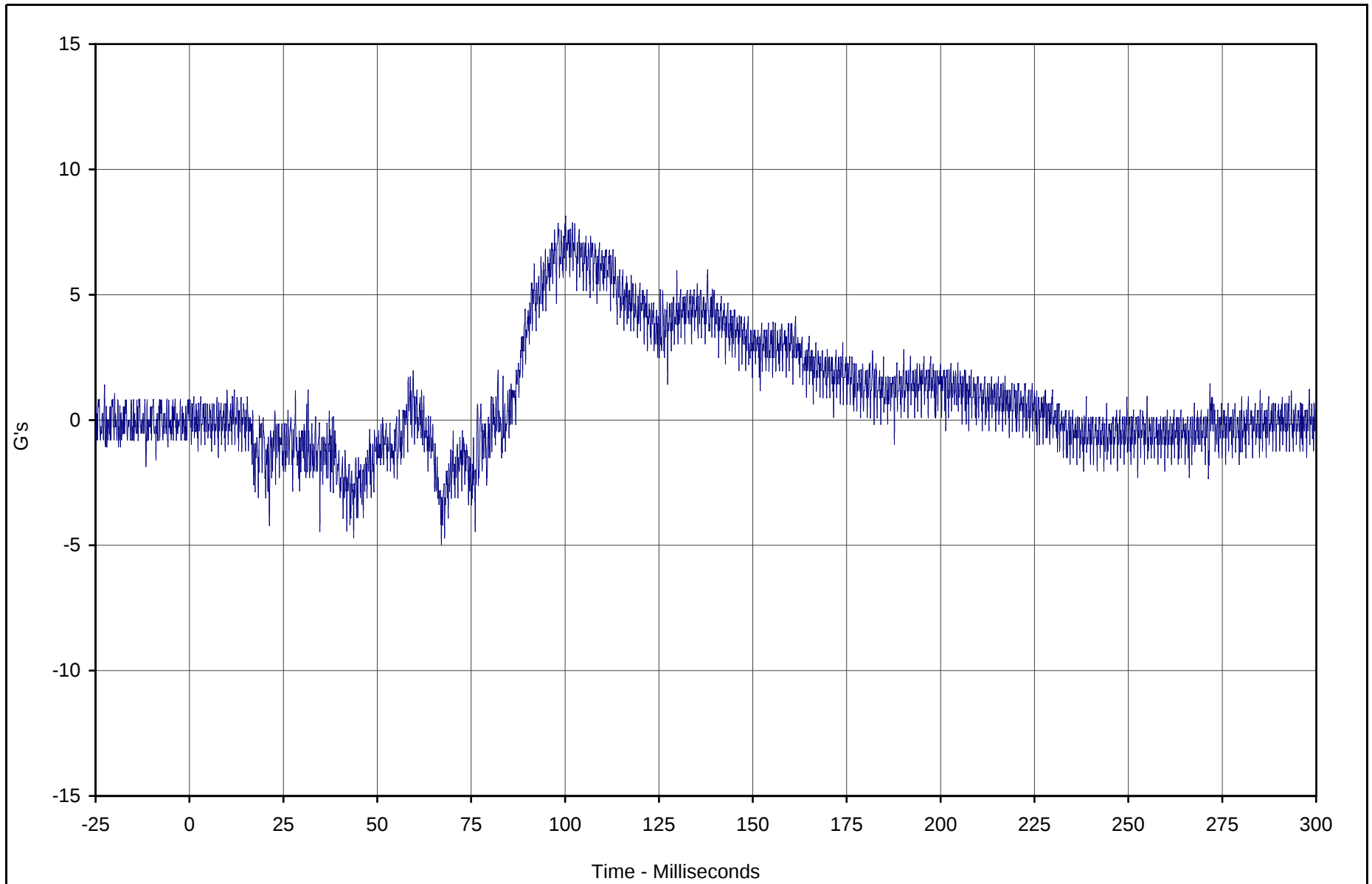


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Head Primary Y	002	FIL	G's	8.1	100.2	-5.0	67.1	1000

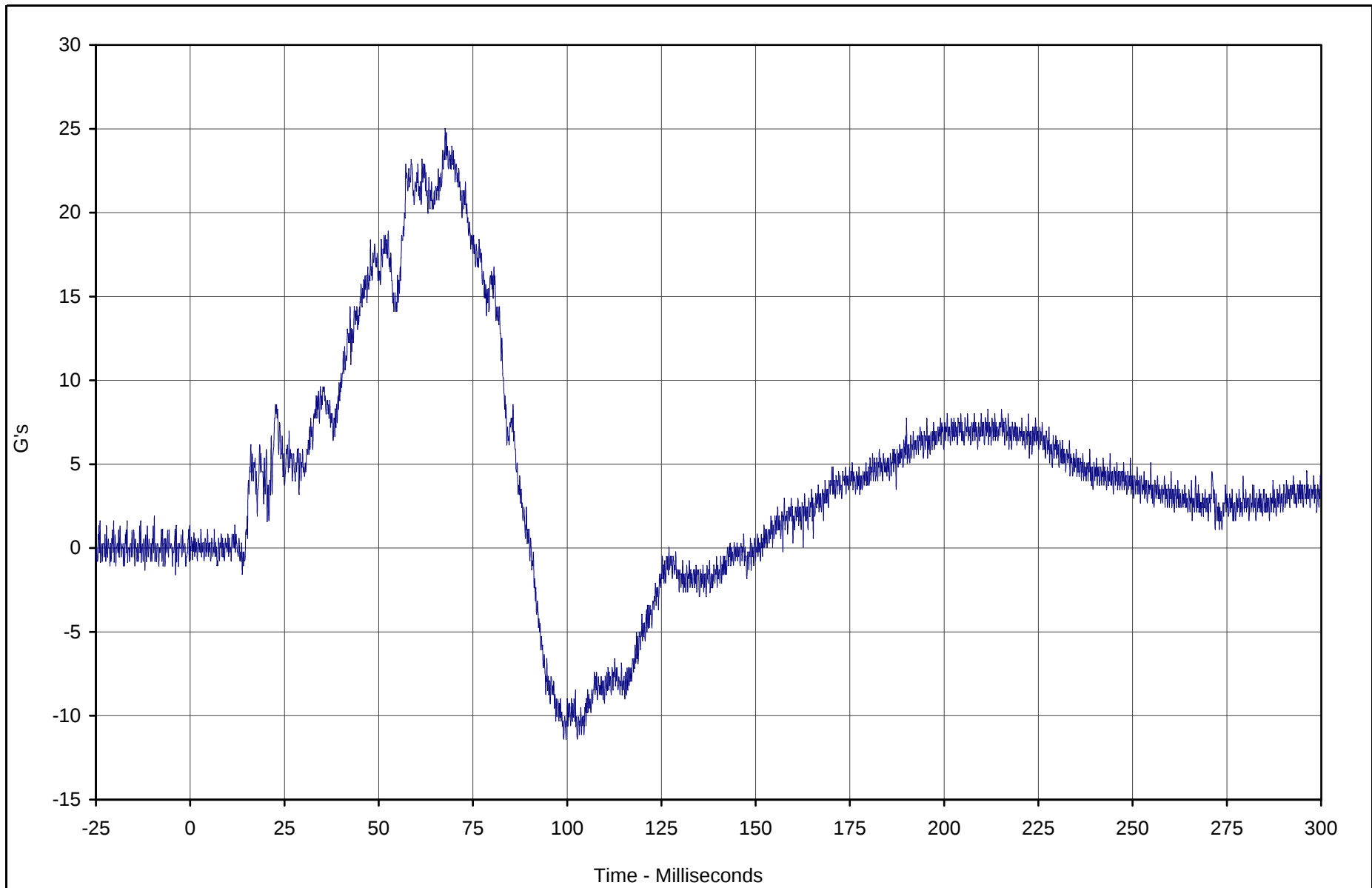


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Head Primary Z	003	FIL	G's	25.0	67.6	-11.4	99.1	1000

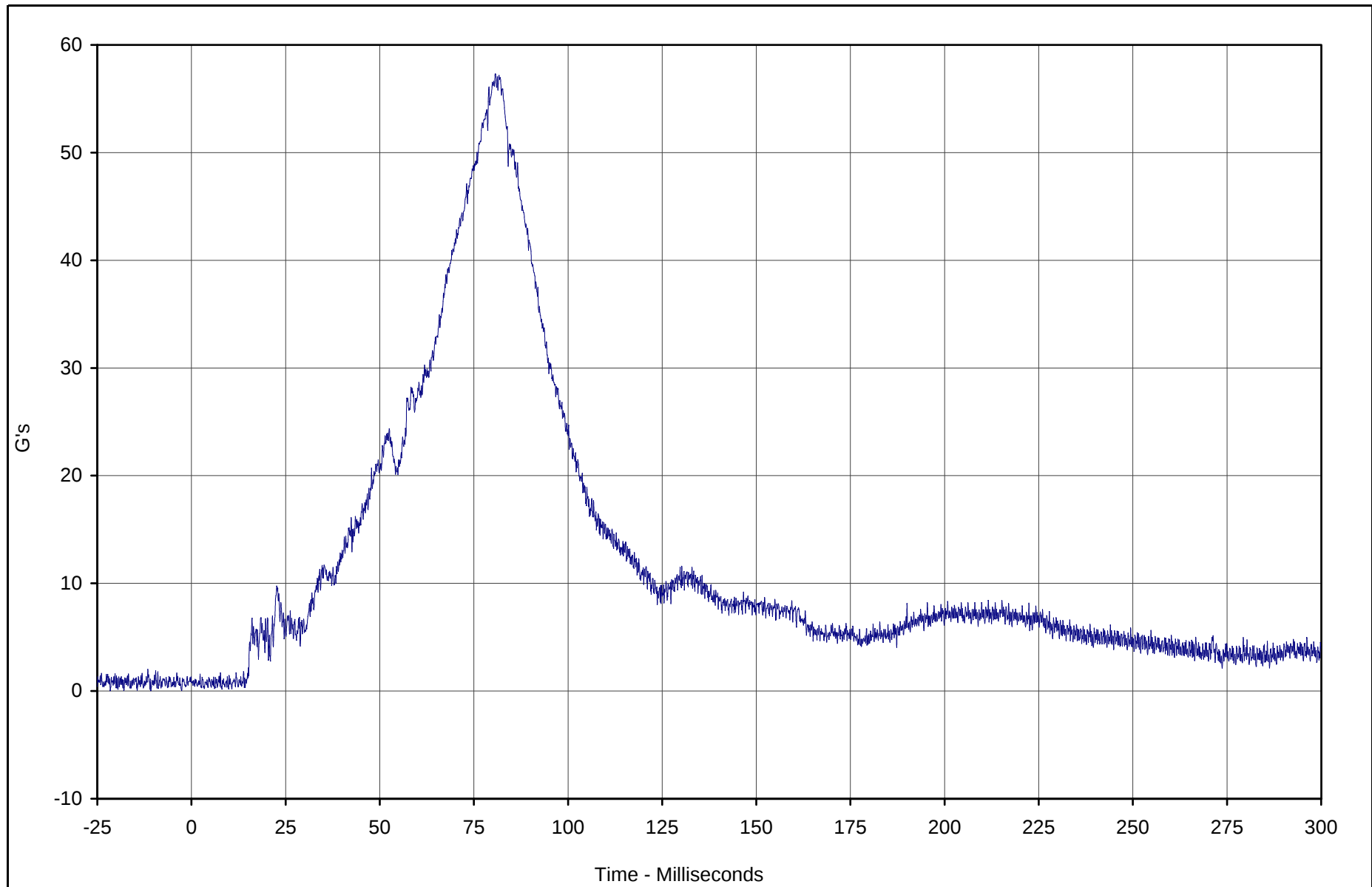


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Head Resultant Primary	001	RES	G's	57.3	80.7	0.2	8.1	1000

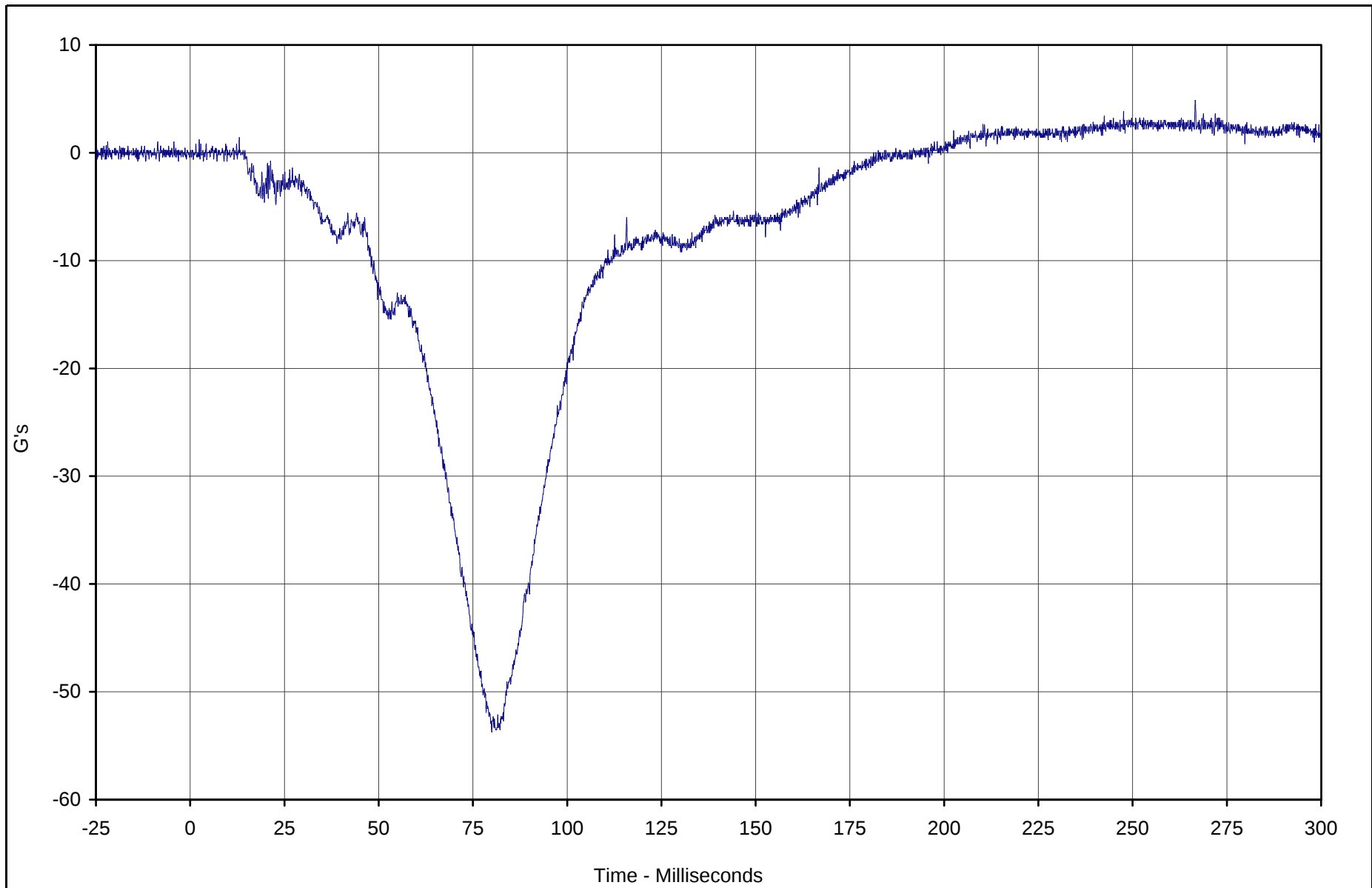


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Head Redundant X	004	FIL	G's	4.8	266.6	-53.7	80.0	1000

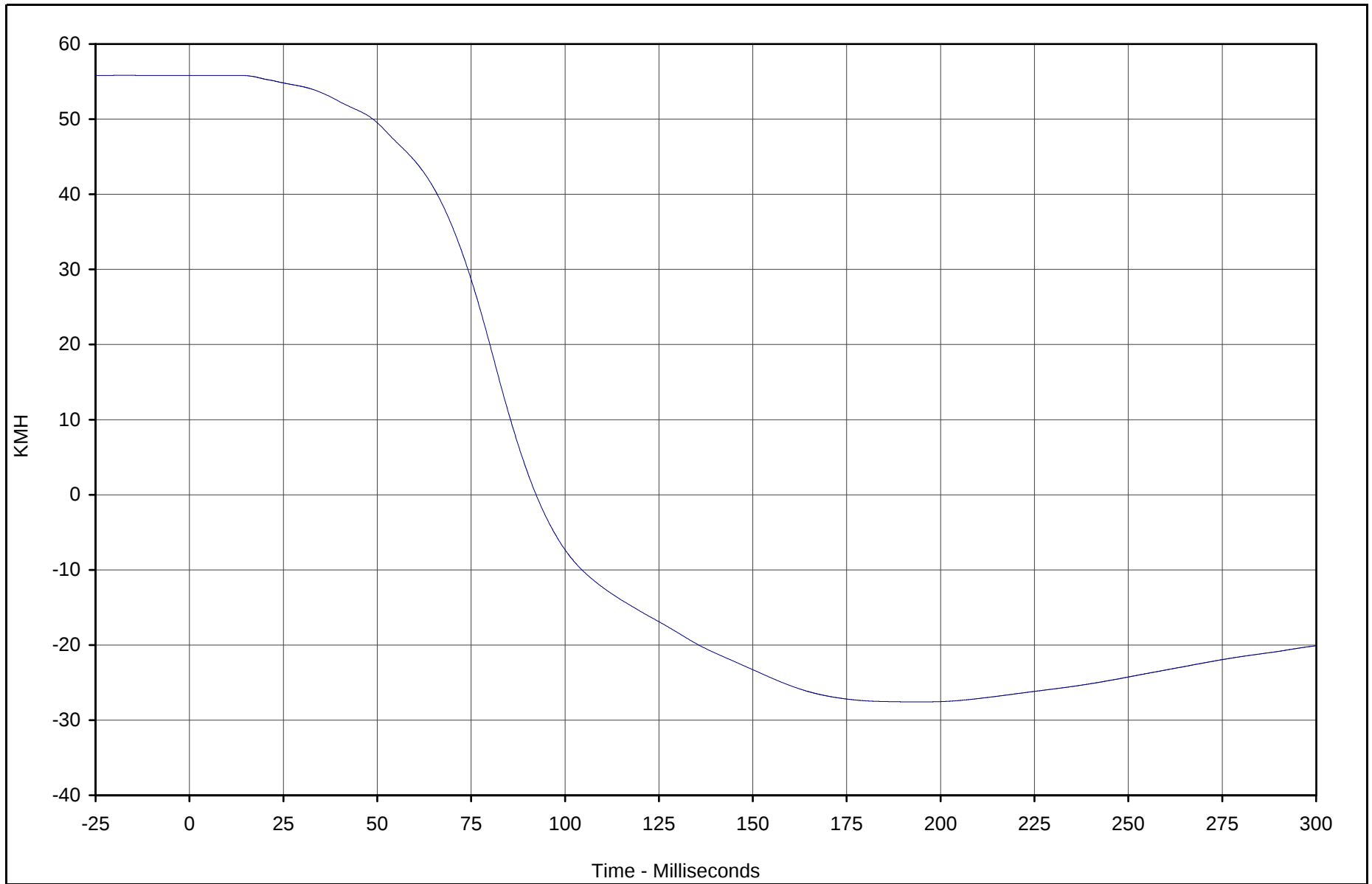


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Head Redundant X Velocity	004	IN1	KMH	55.8	0.0	-27.6	193.3	180

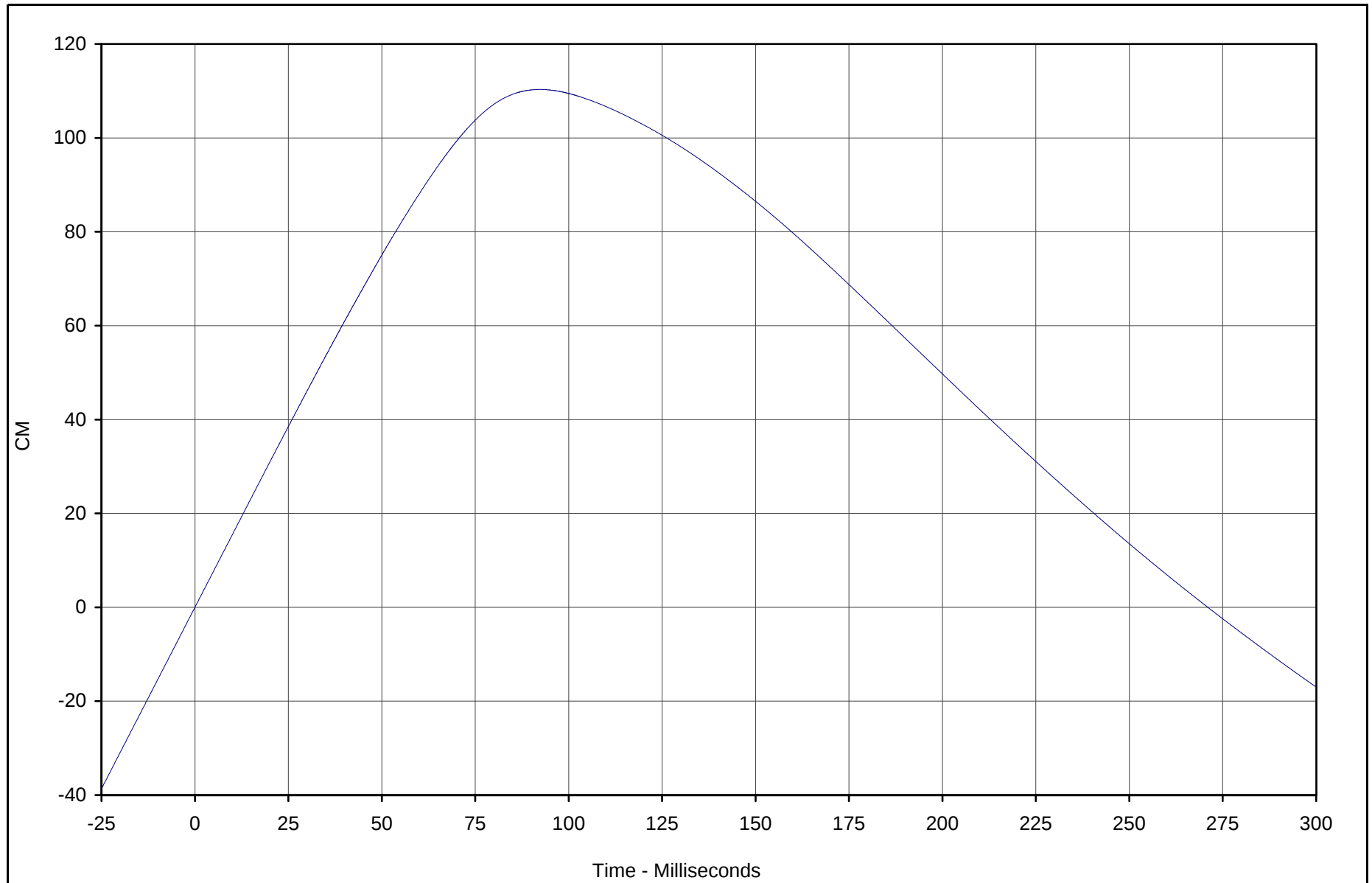


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Head Redundant X Displ.	004	IN2	CM	110.3	92.3	-16.9	299.9	180

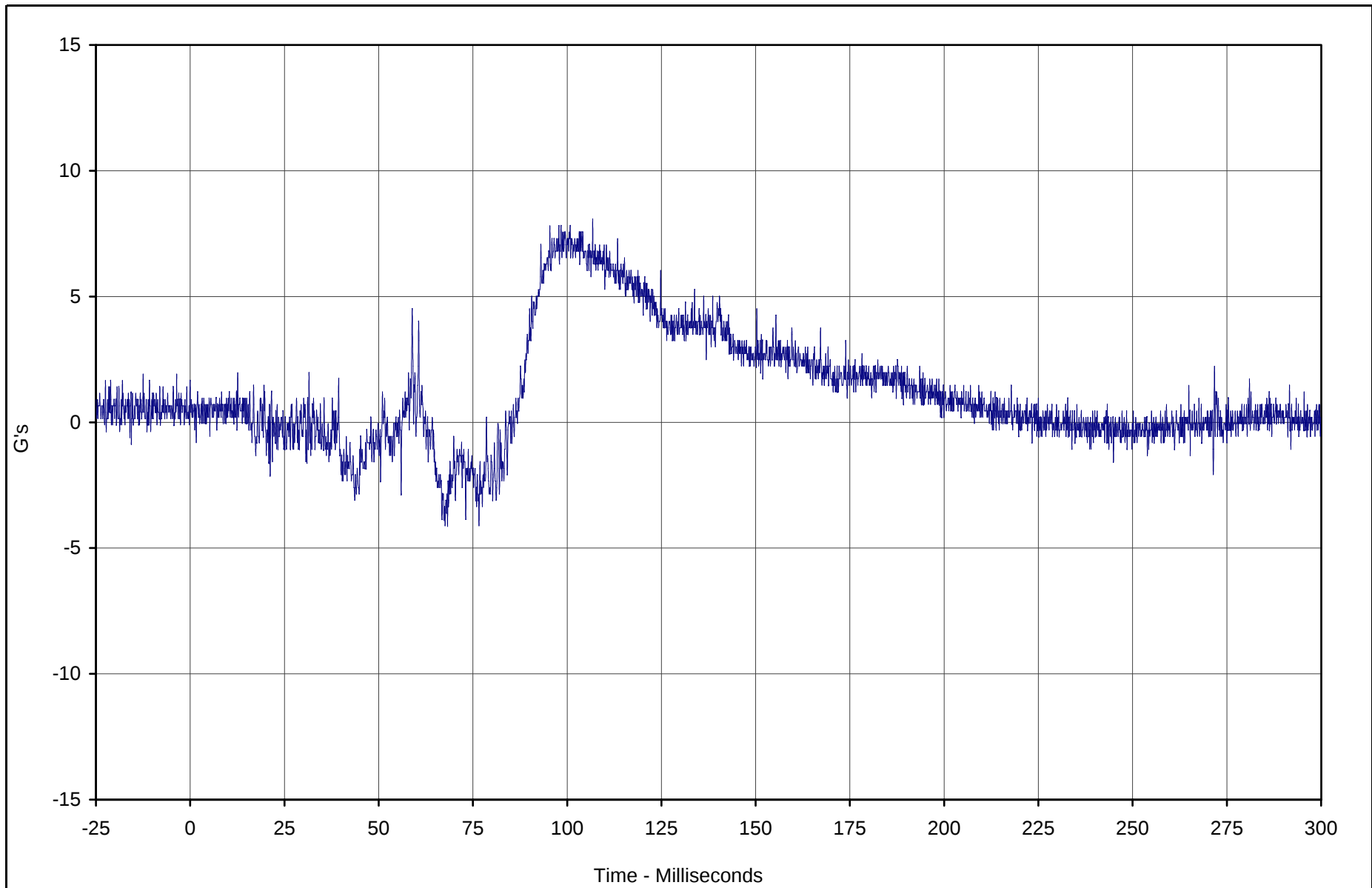


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Head Redundant Y	005	FIL	G's	8.1	106.8	-4.1	67.6	1000

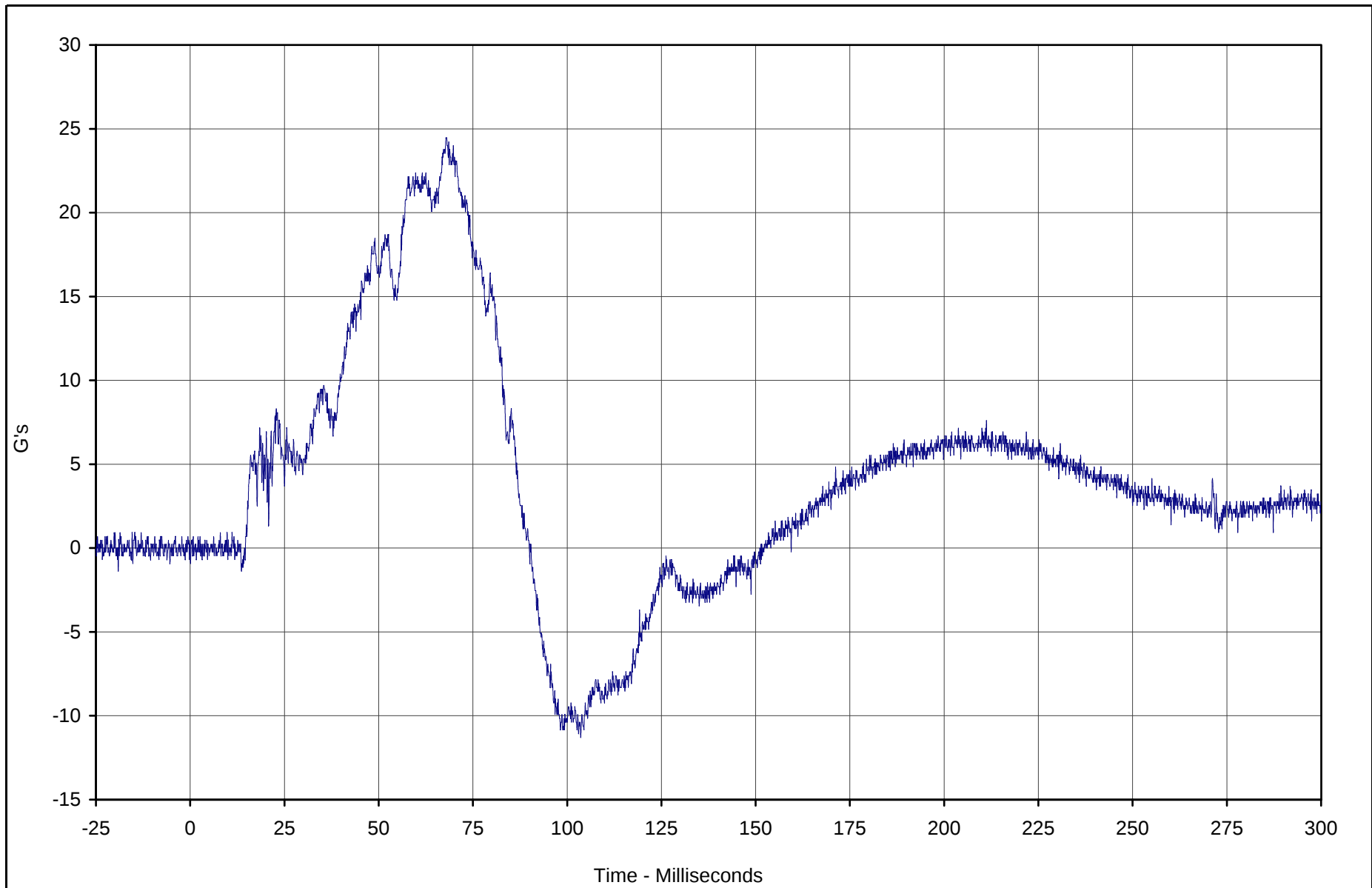


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Head Redundant Z	006	FIL	G's	24.5	67.8	-11.3	103.6	1000

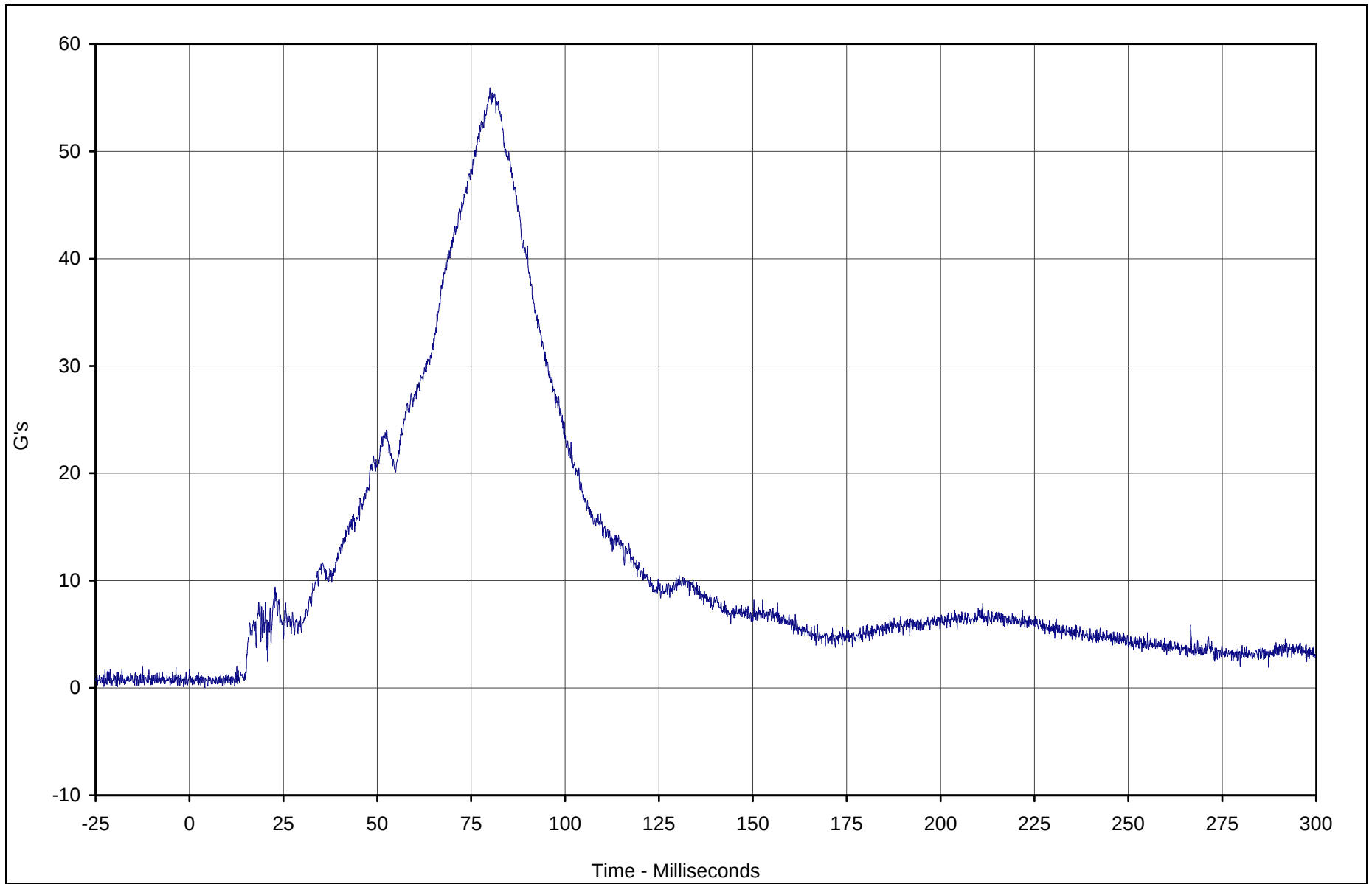


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Head Resultant Redundant	004	RES	G's	55.9	80.0	0.1	4.1	1000

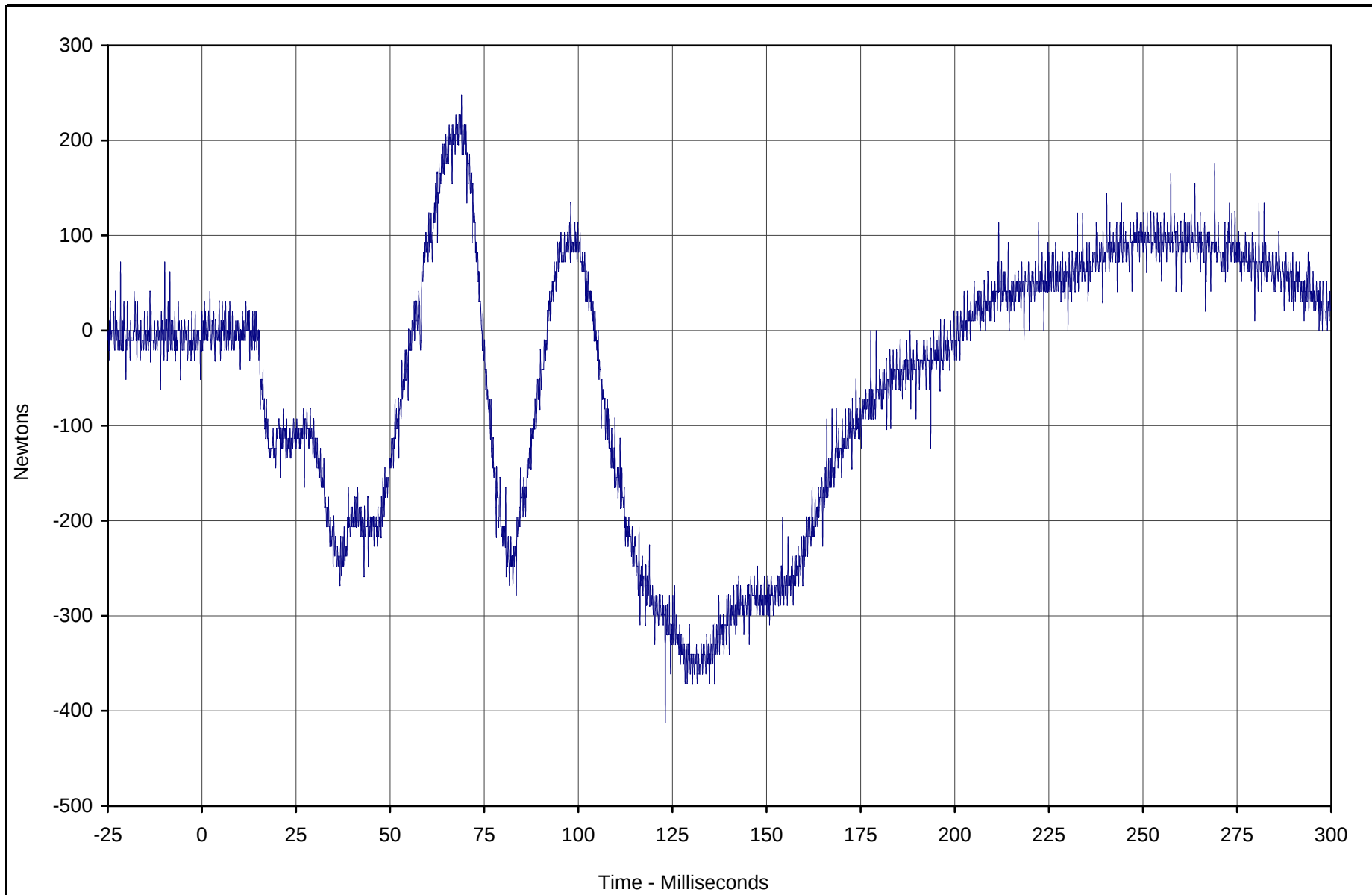


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Neck Force X	007	FIL	Newtons	247.6	69.0	-412.7	123.1	1000

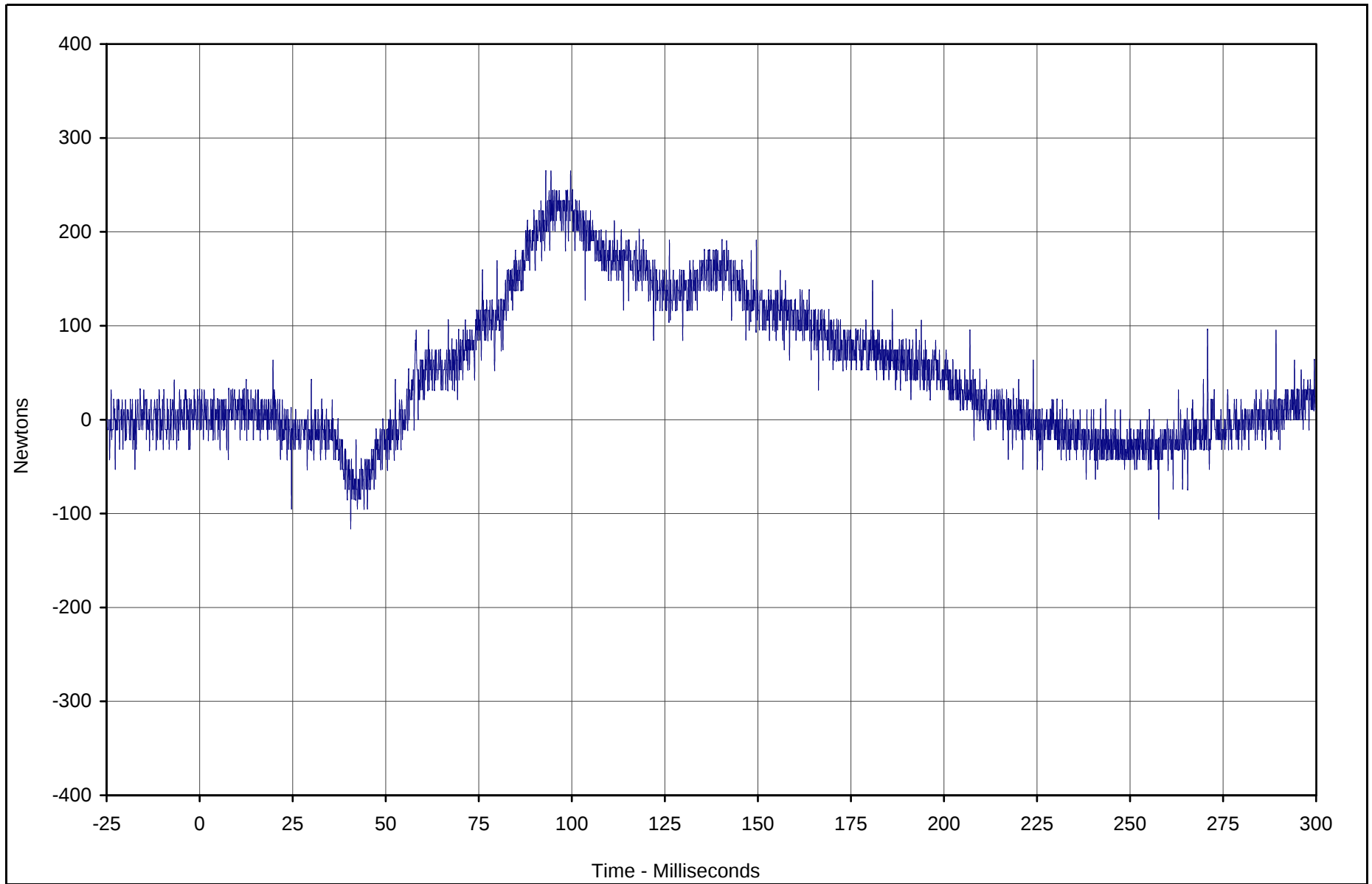


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Neck Force Y	008	FIL	Newtons	264.9	93.0	-116.6	40.6	1000

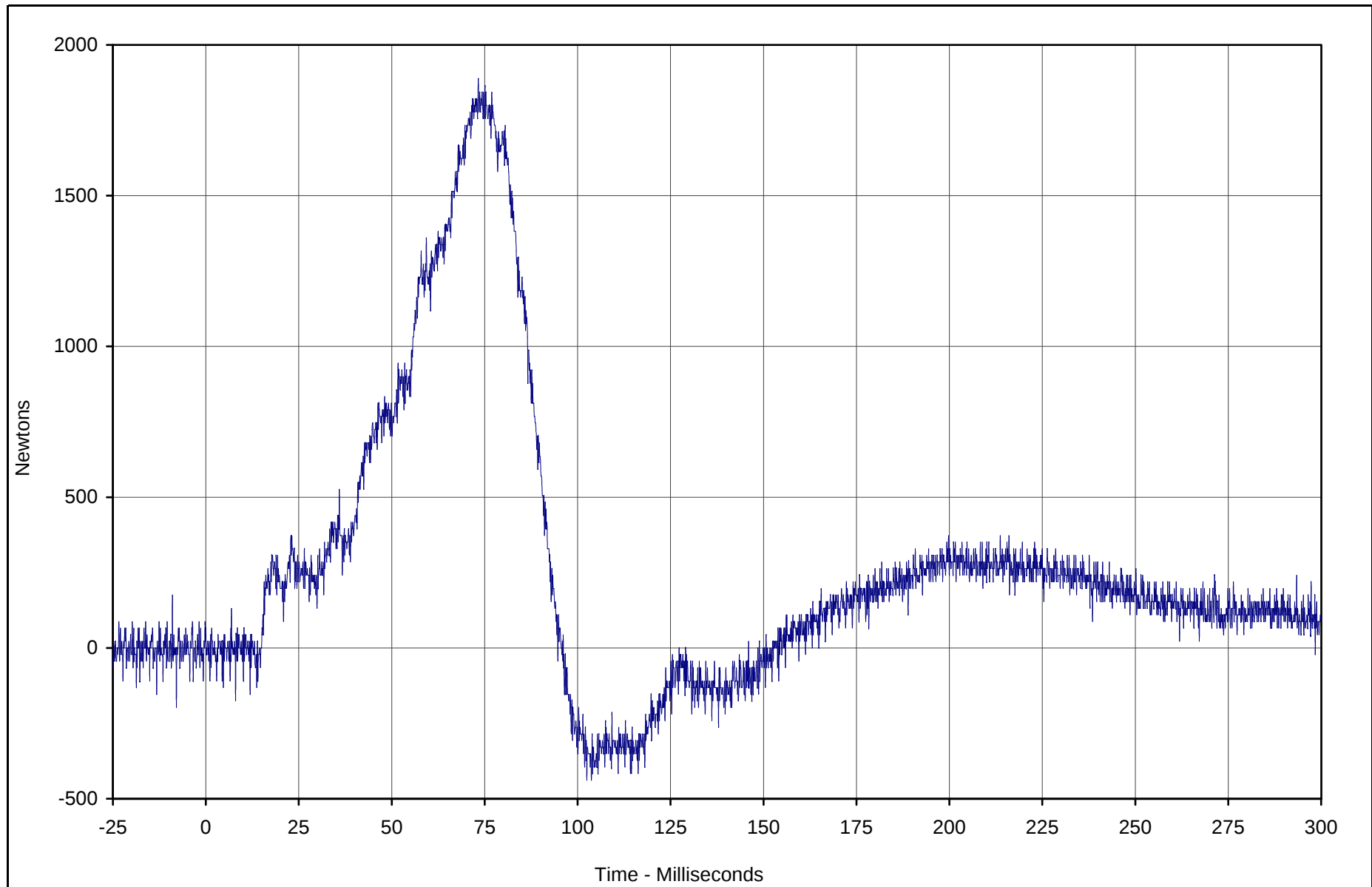


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Neck Force Z	009	FIL	Newtons	1887.4	73.3	-438.9	102.5	1000

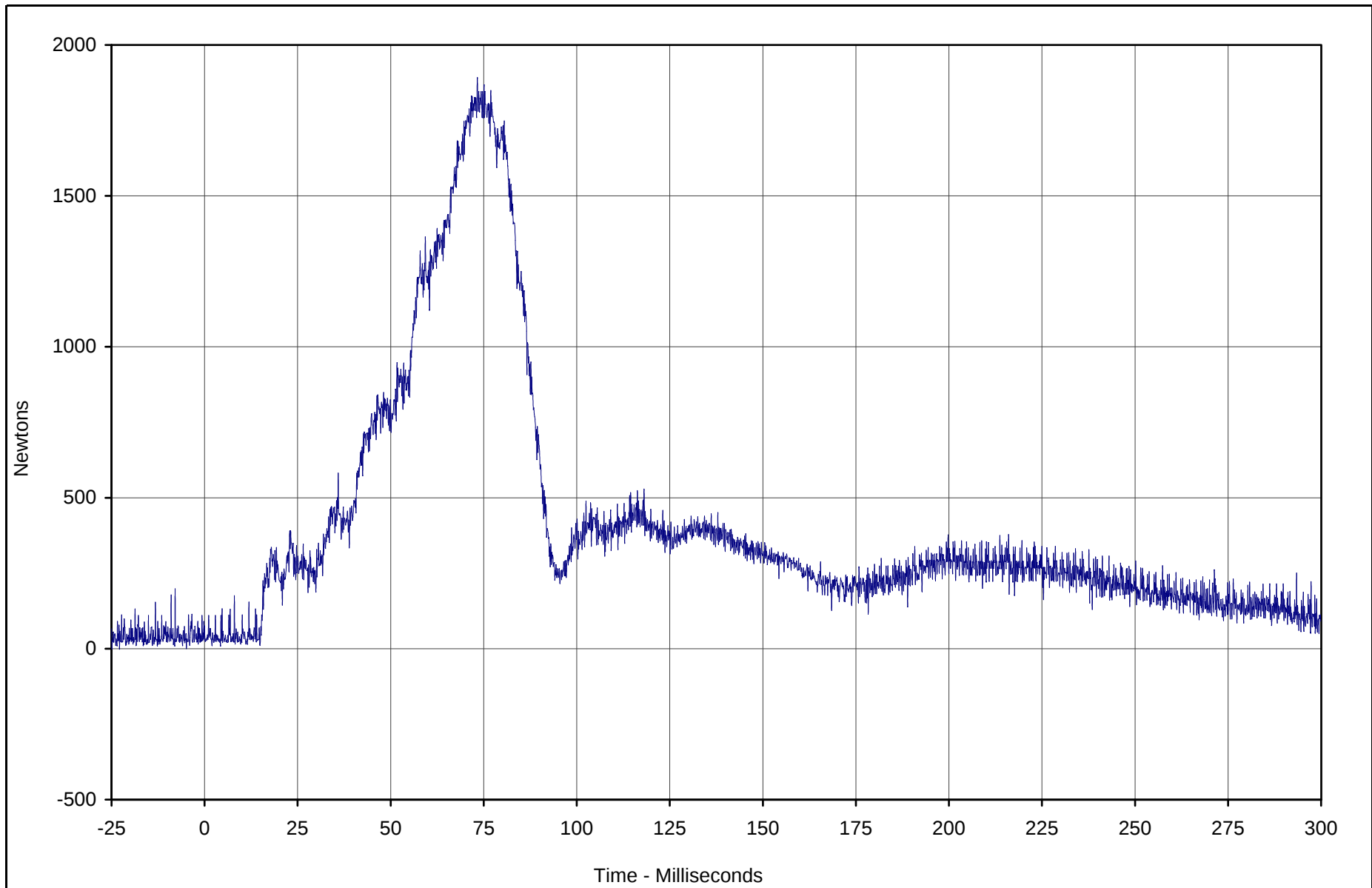


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Neck Force Resultant	007	RES	Newtons	1890.7	73.3	10.3	4.3	1000

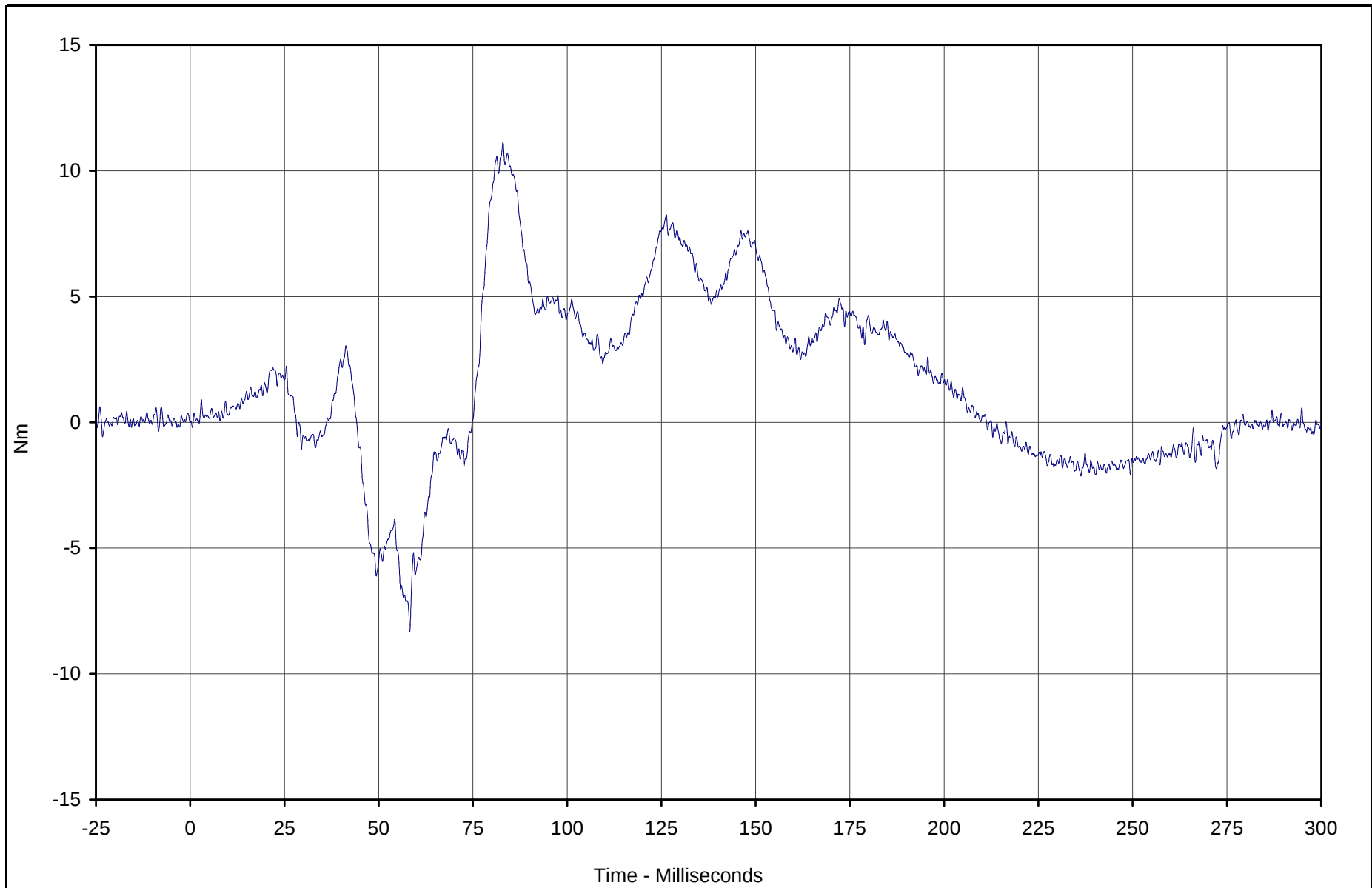


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Neck Moment X	010	FIL	Nm	11.1	83.0	-8.3	58.2	600

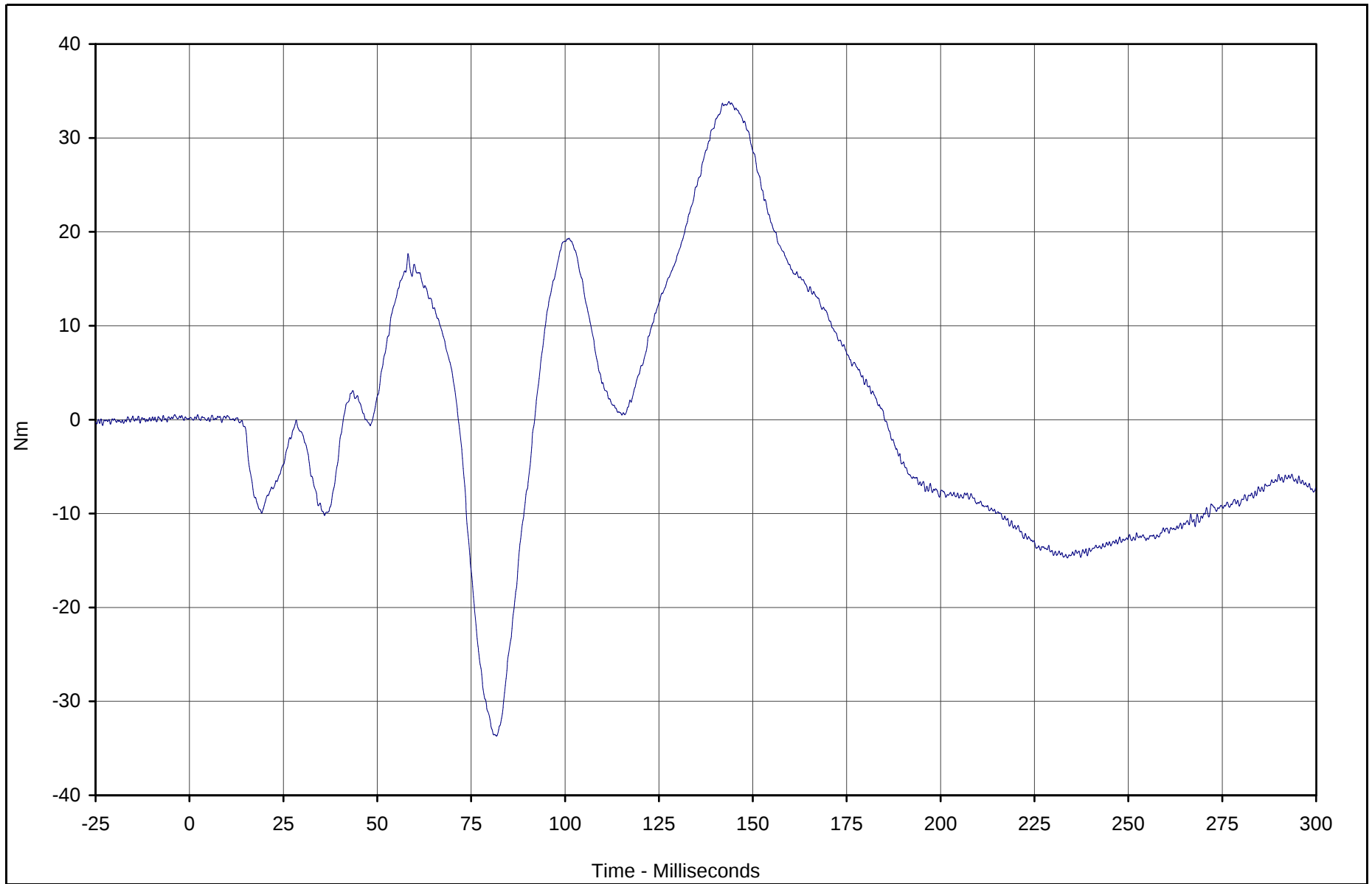


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Neck Moment Y	011	FIL	Nm	33.9	143.6	-33.7	81.8	600

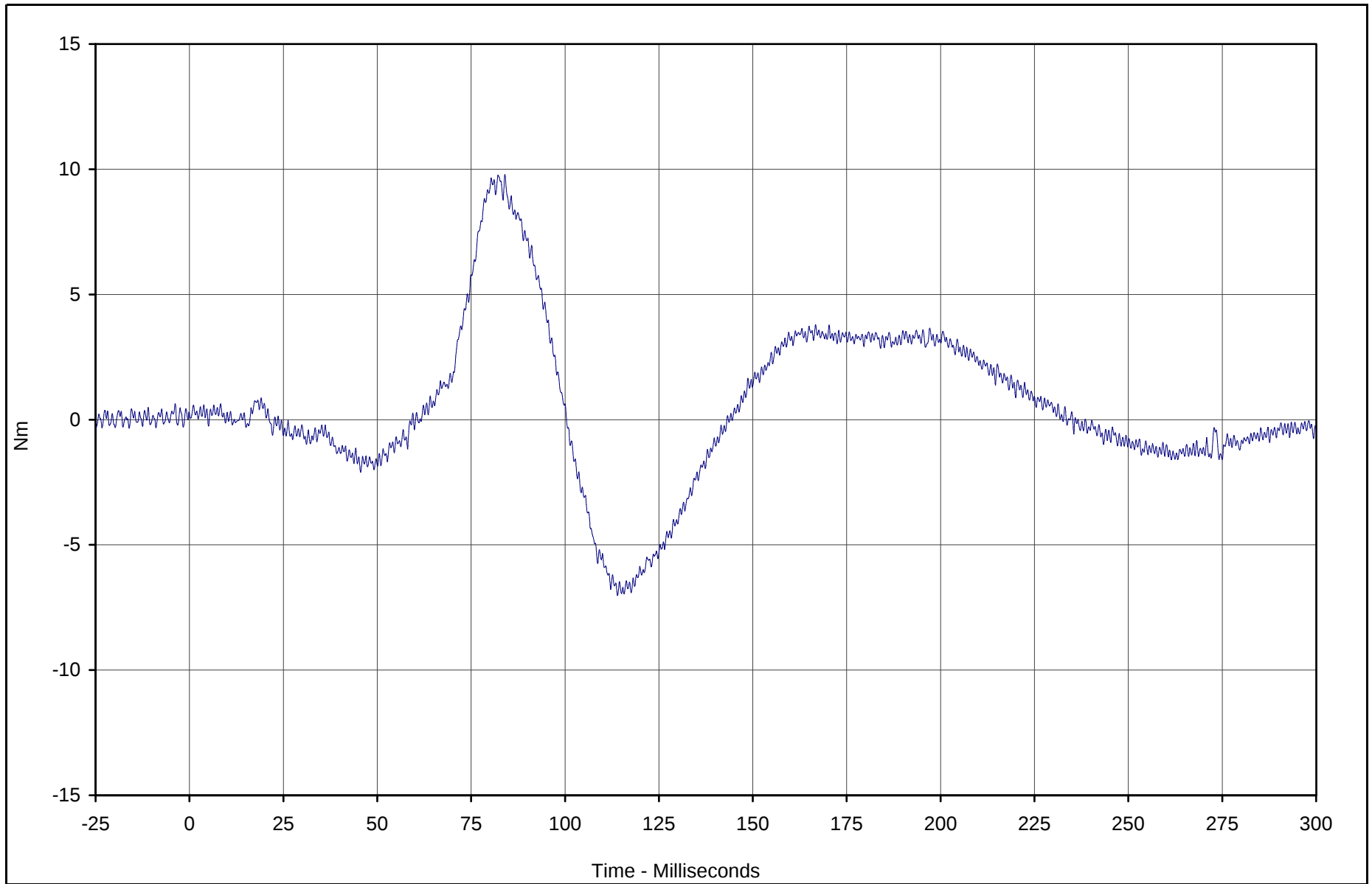


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Neck Moment Z	012	FIL	Nm	9.8	84.0	-7.0	114.0	600

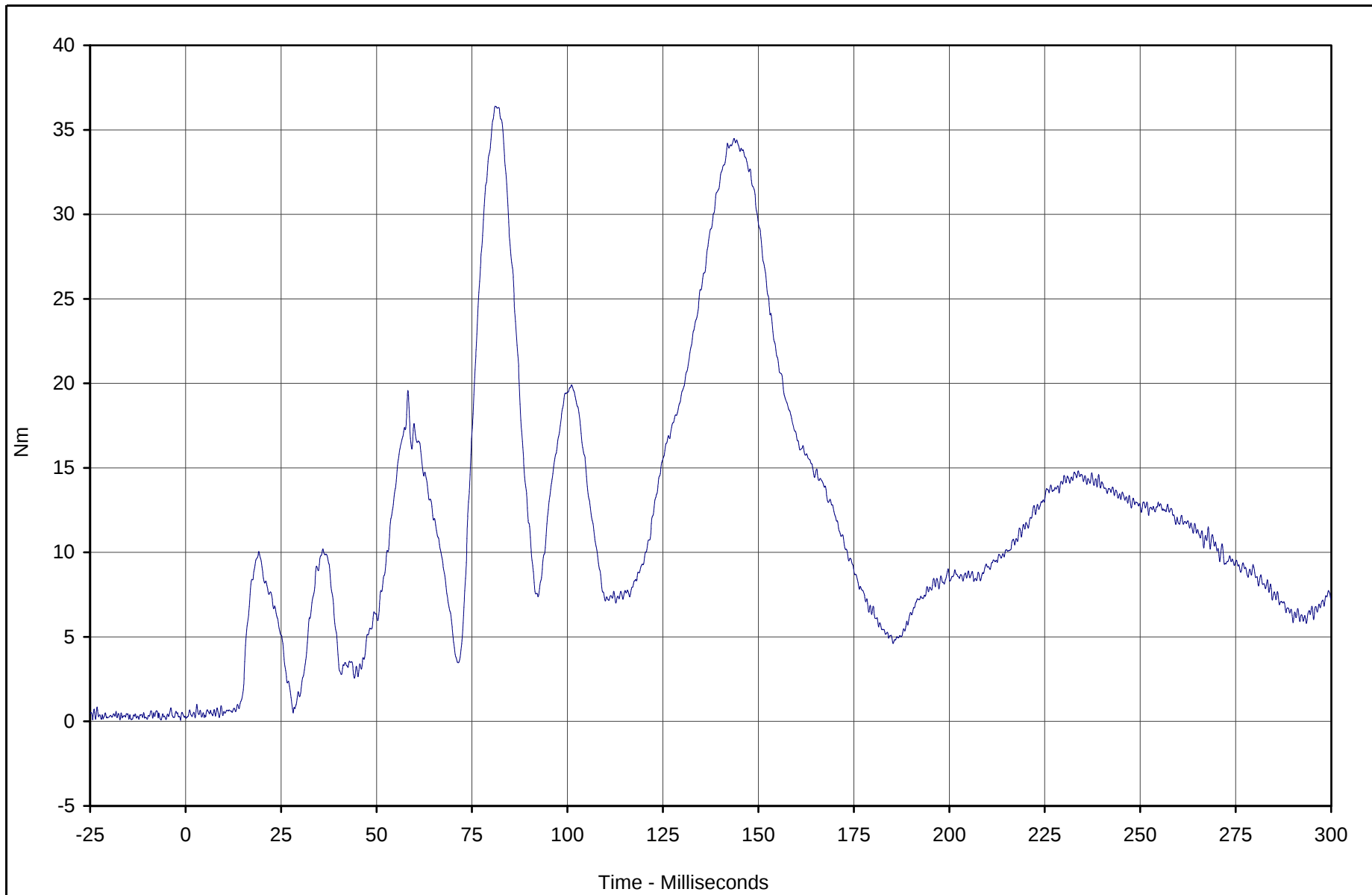


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Neck Moment Resultant	010	RES	Nm	36.4	81.1	0.2	0.1	600

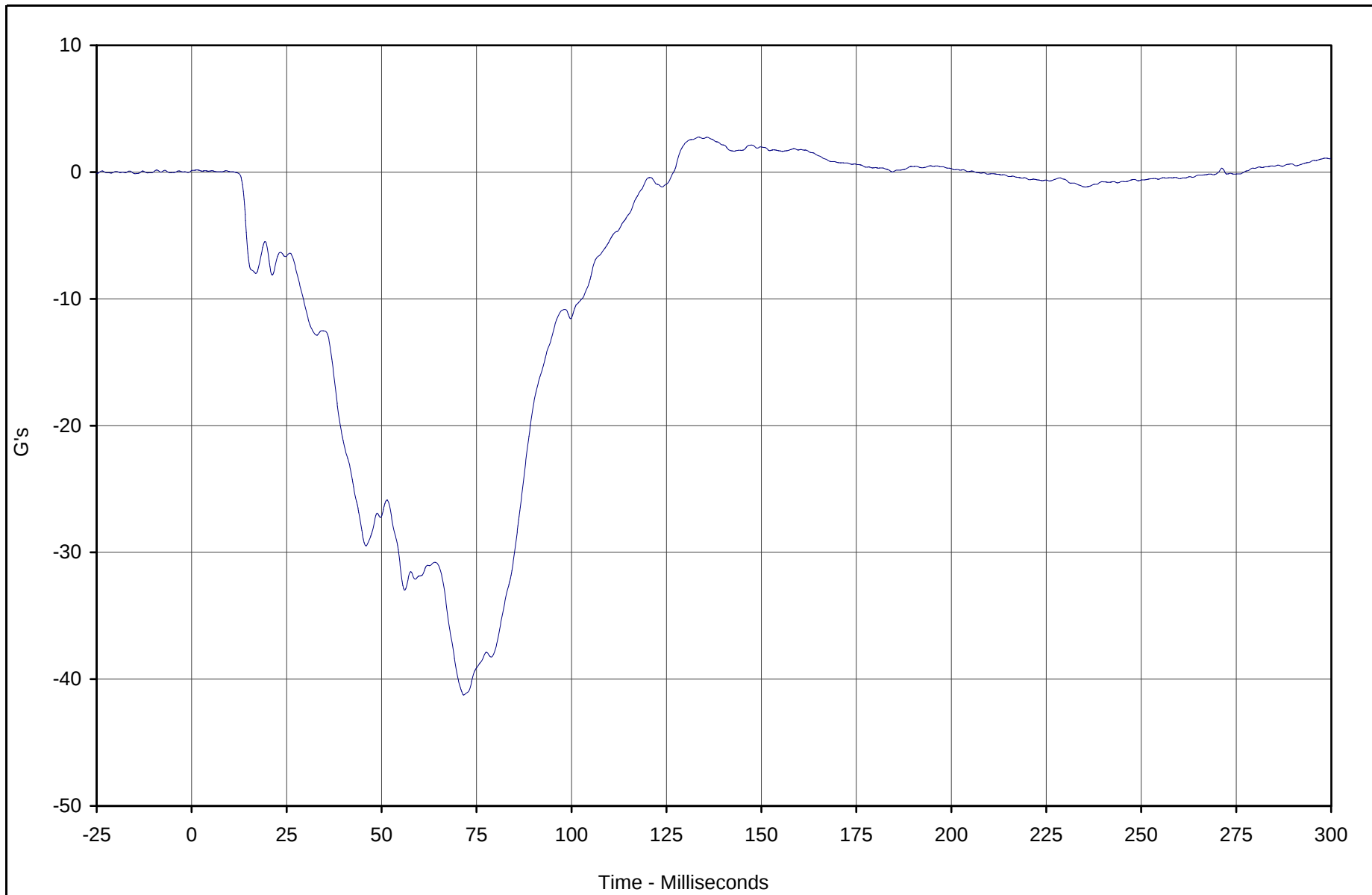


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Chest Primary X	013	FIL	G's	2.8	133.5	-41.2	71.6	180

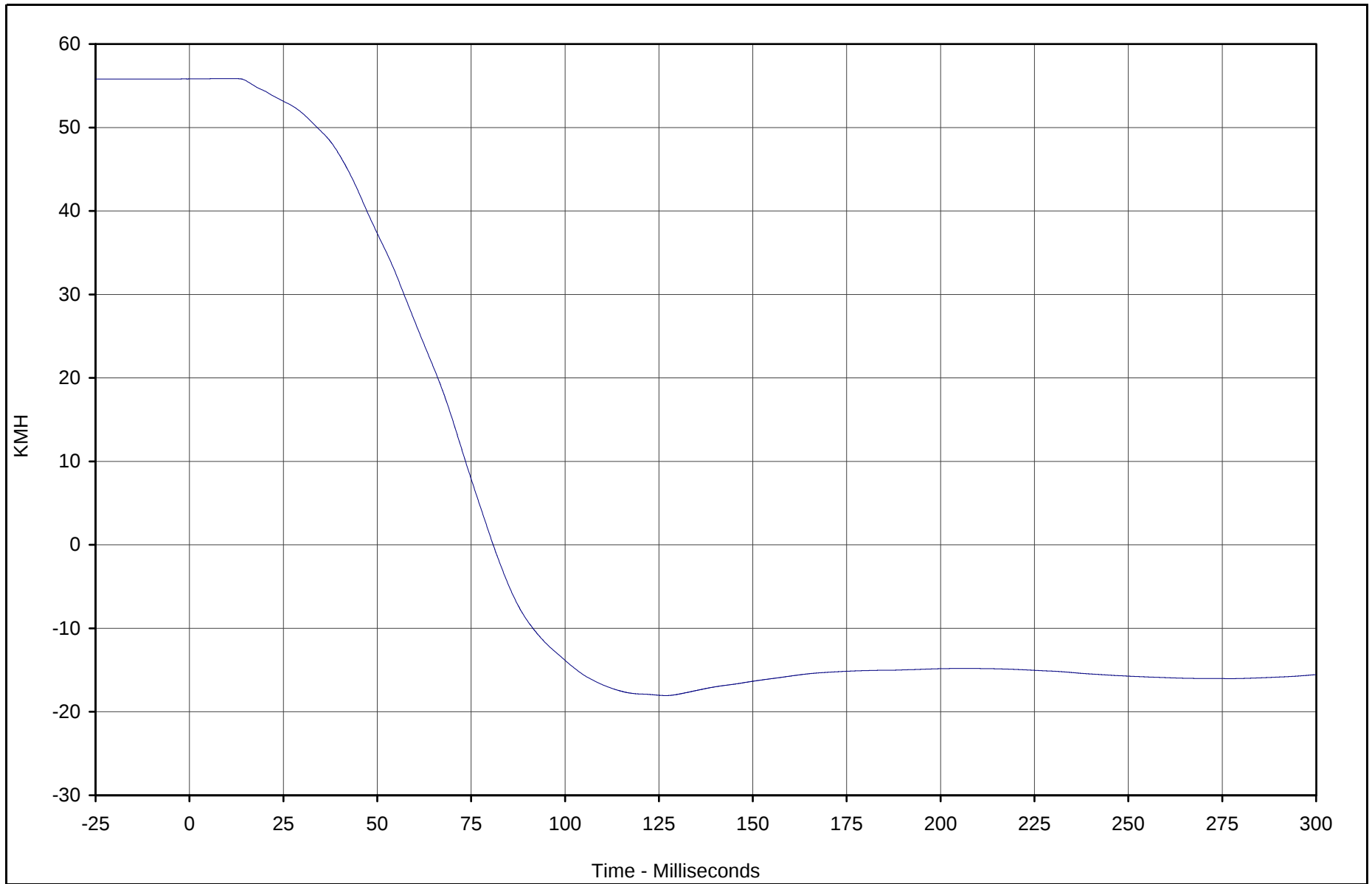


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Chest Primary X Velocity	013	IN1	KMH	55.9	11.3	-18.1	126.9	180

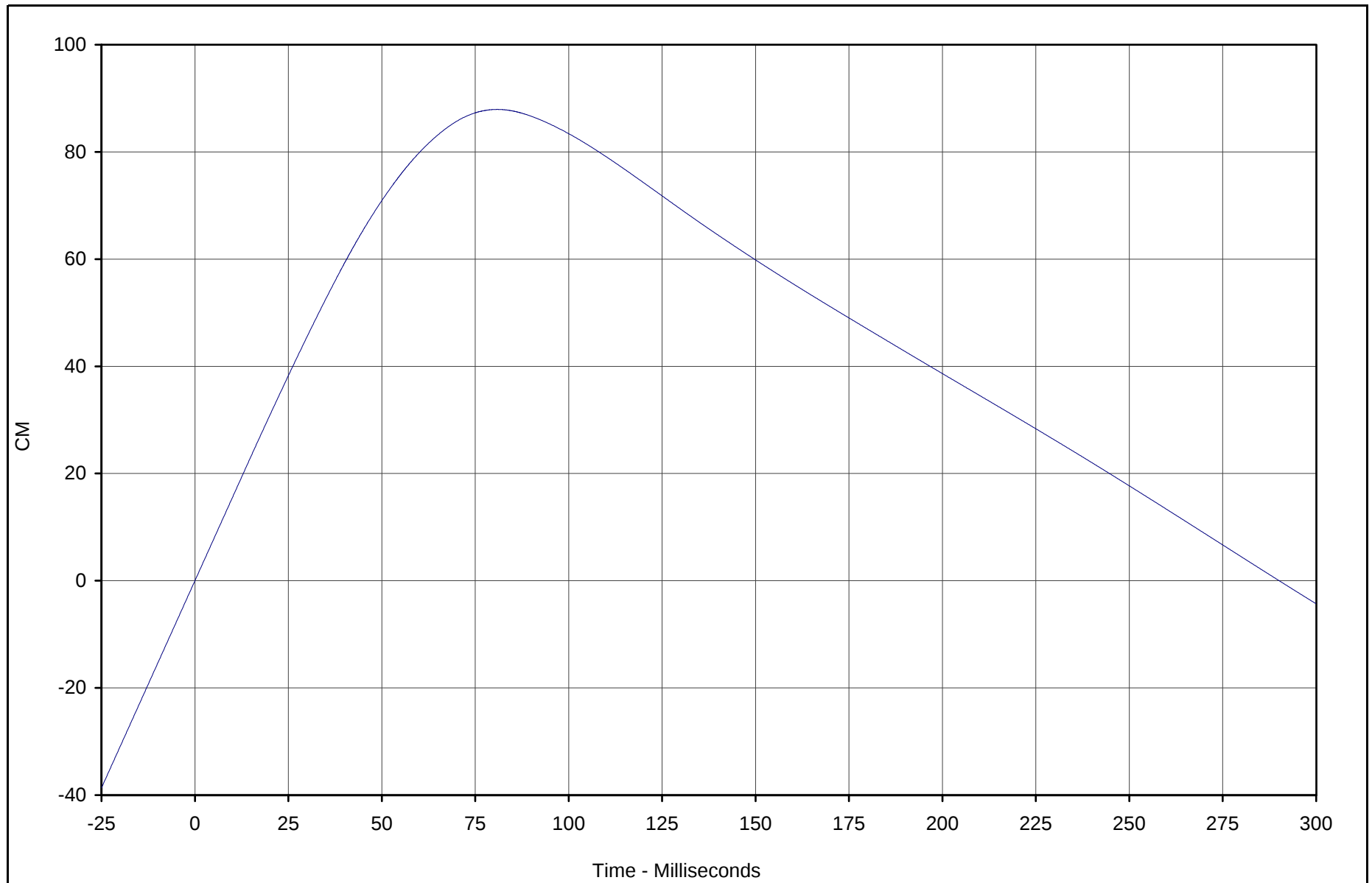


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Chest Primary X Displ.	013	IN2	CM	87.9	80.9	-4.3	299.9	180



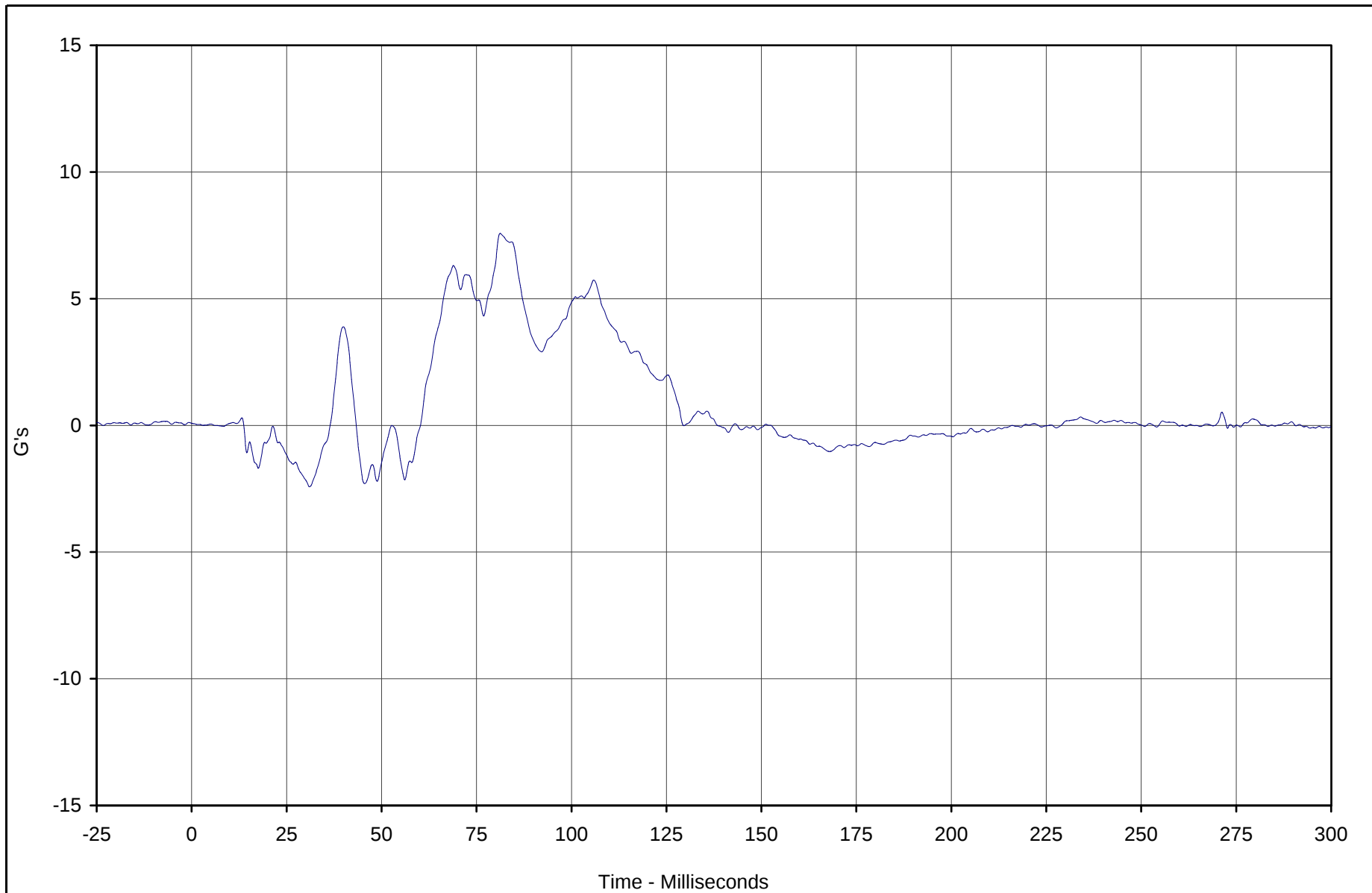
Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

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Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Chest Primary Y	014	FIL	G's	7.6	81.2	-2.4	31.1	180



Test Vehicle: 2002 Mazda MPV LX Minivan

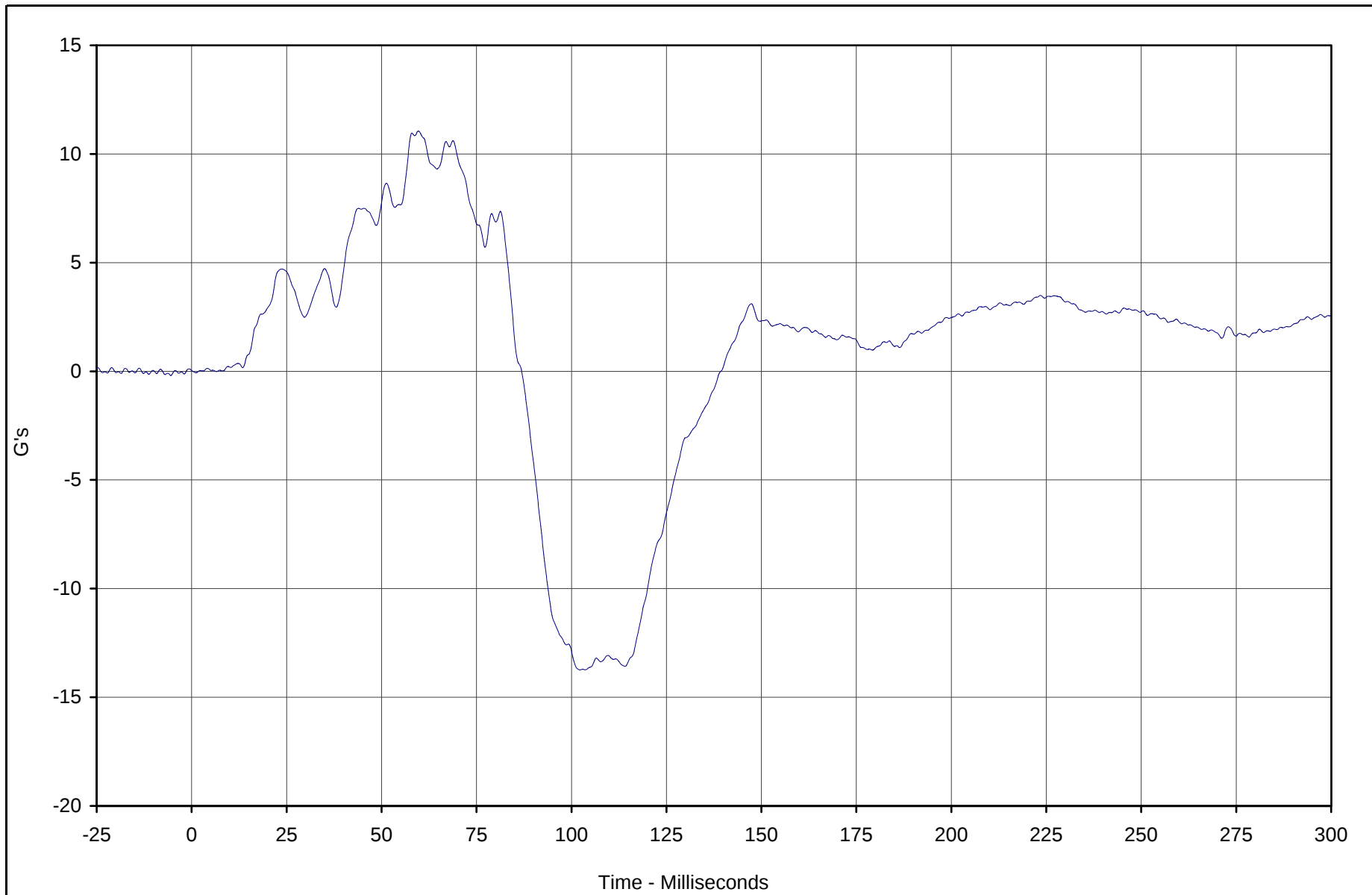
Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

KAR22001-08

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Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Chest Primary Z	015	FIL	G's	11.1	59.7	-13.7	102.2	180



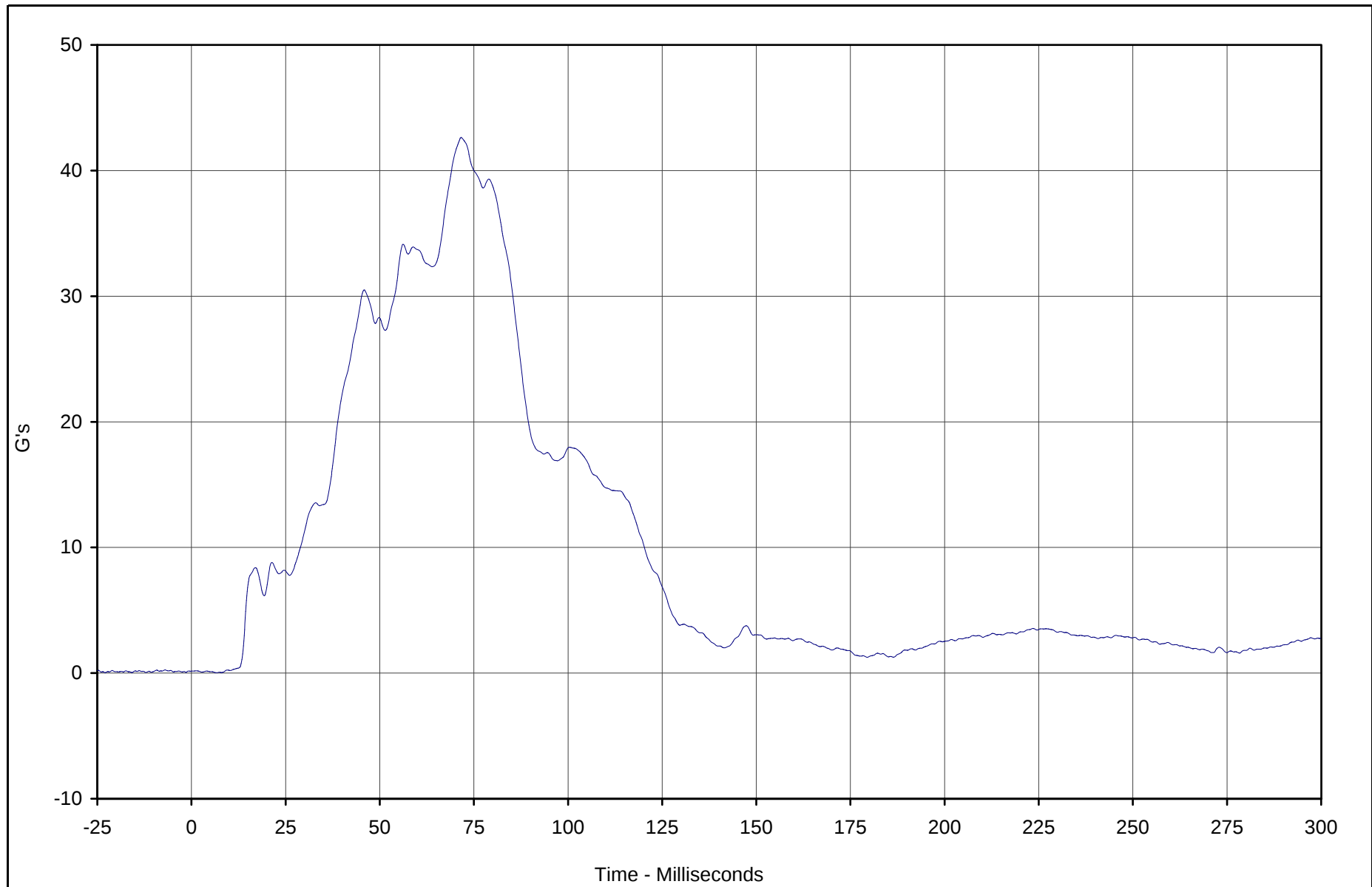
Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

KAR22001-08



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Chest Resultant Primary	013	RES	G's	42.6	71.6	0.0	6.8	180

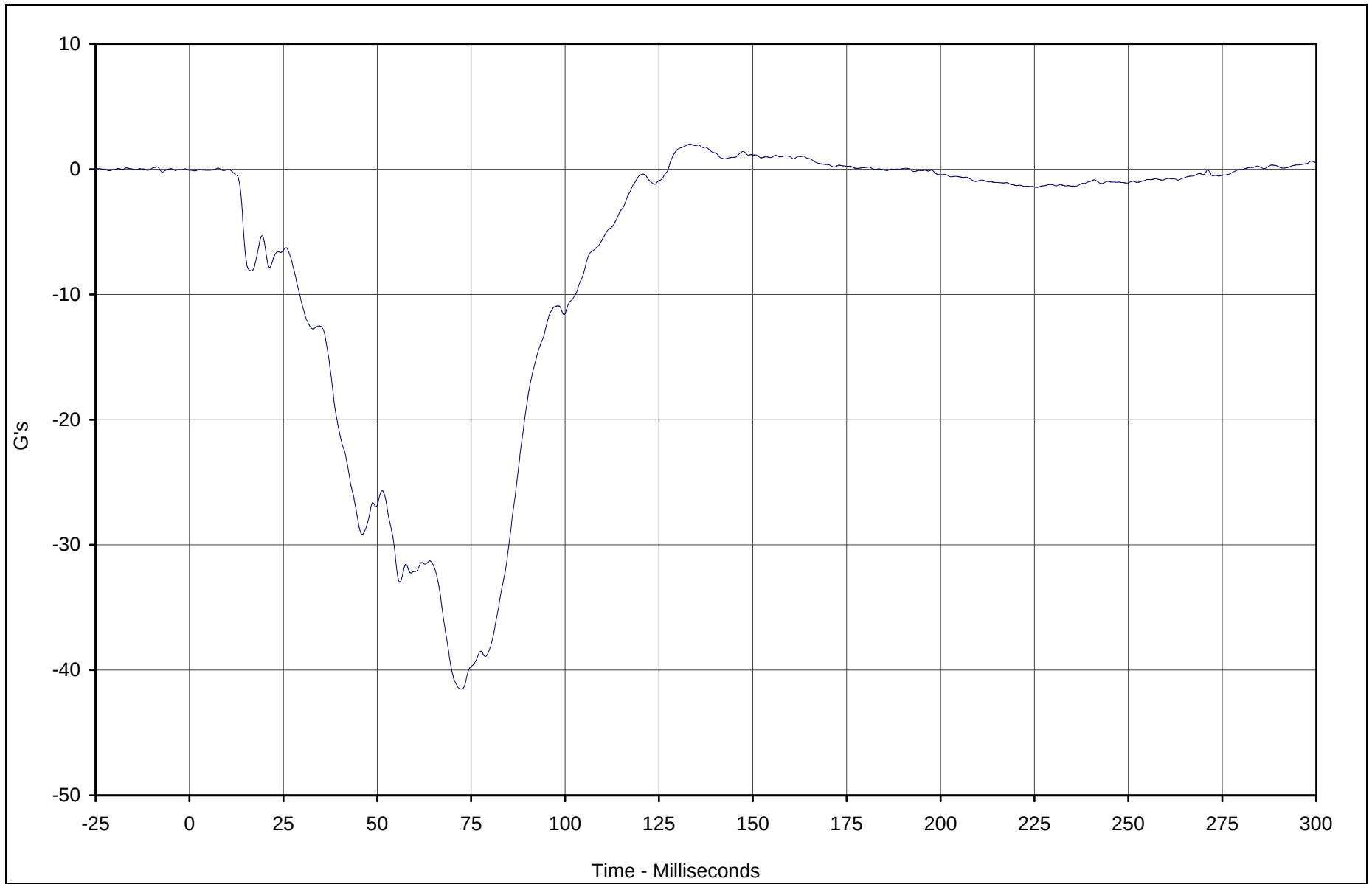


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Chest Redundant X	016	FIL	G's	2.0	133.3	-41.5	72.4	180

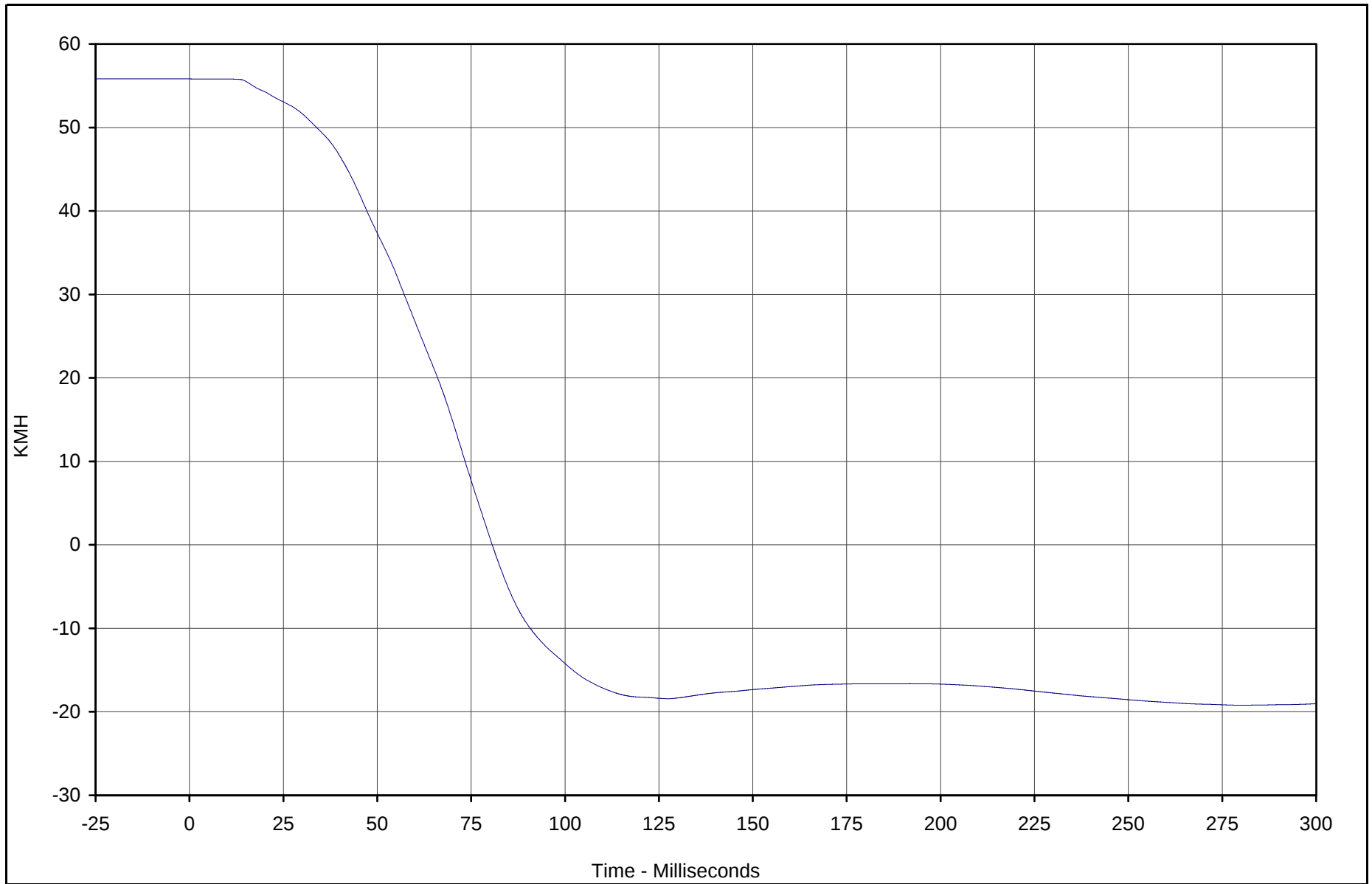


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Chest Redundant X Velocity	016	IN1	KMH	55.8	0.0	-19.2	280.6	180

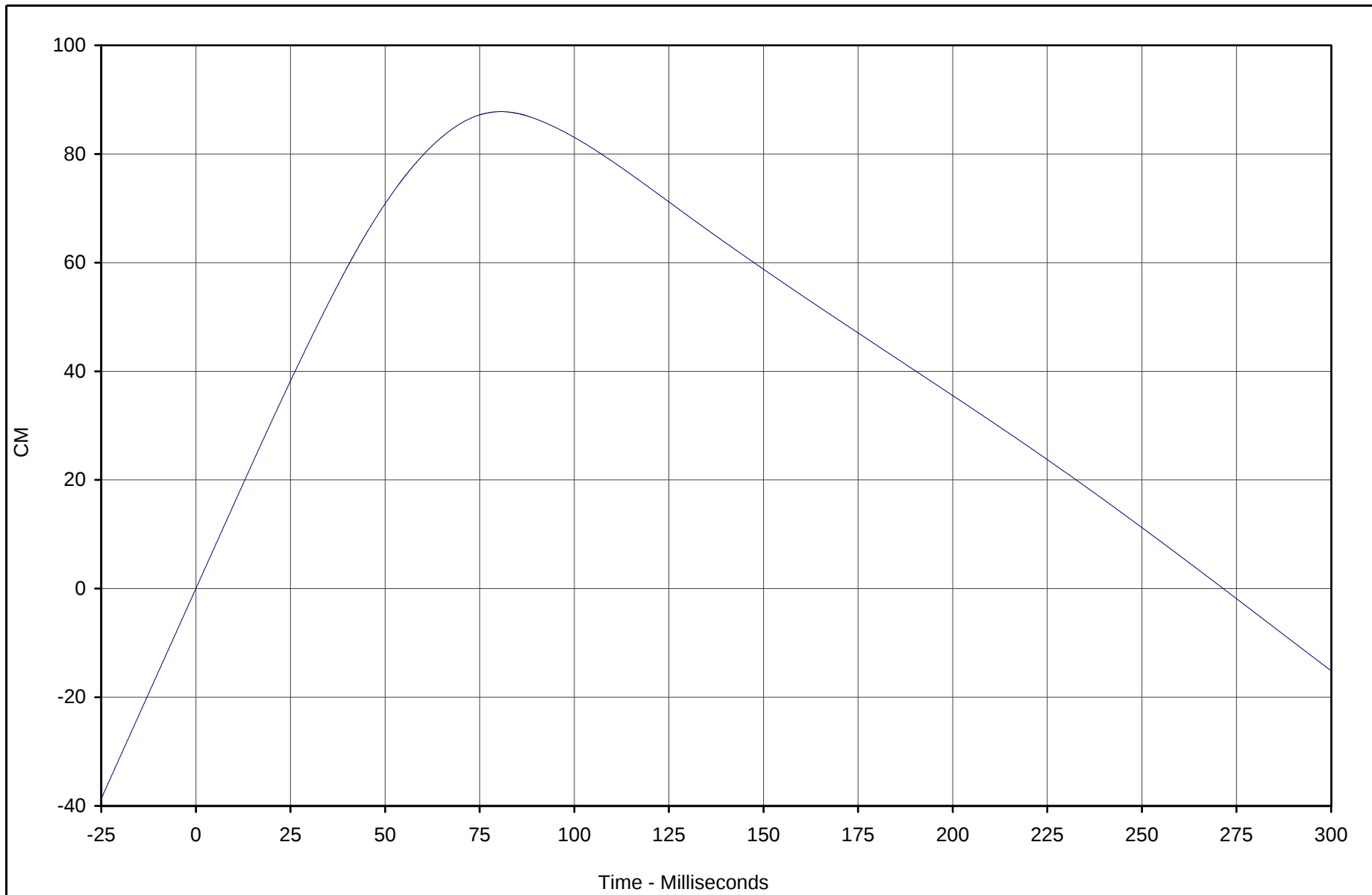


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Chest Redundant X Displ.	016	IN2	CM	87.8	80.6	-15.1	299.9	180

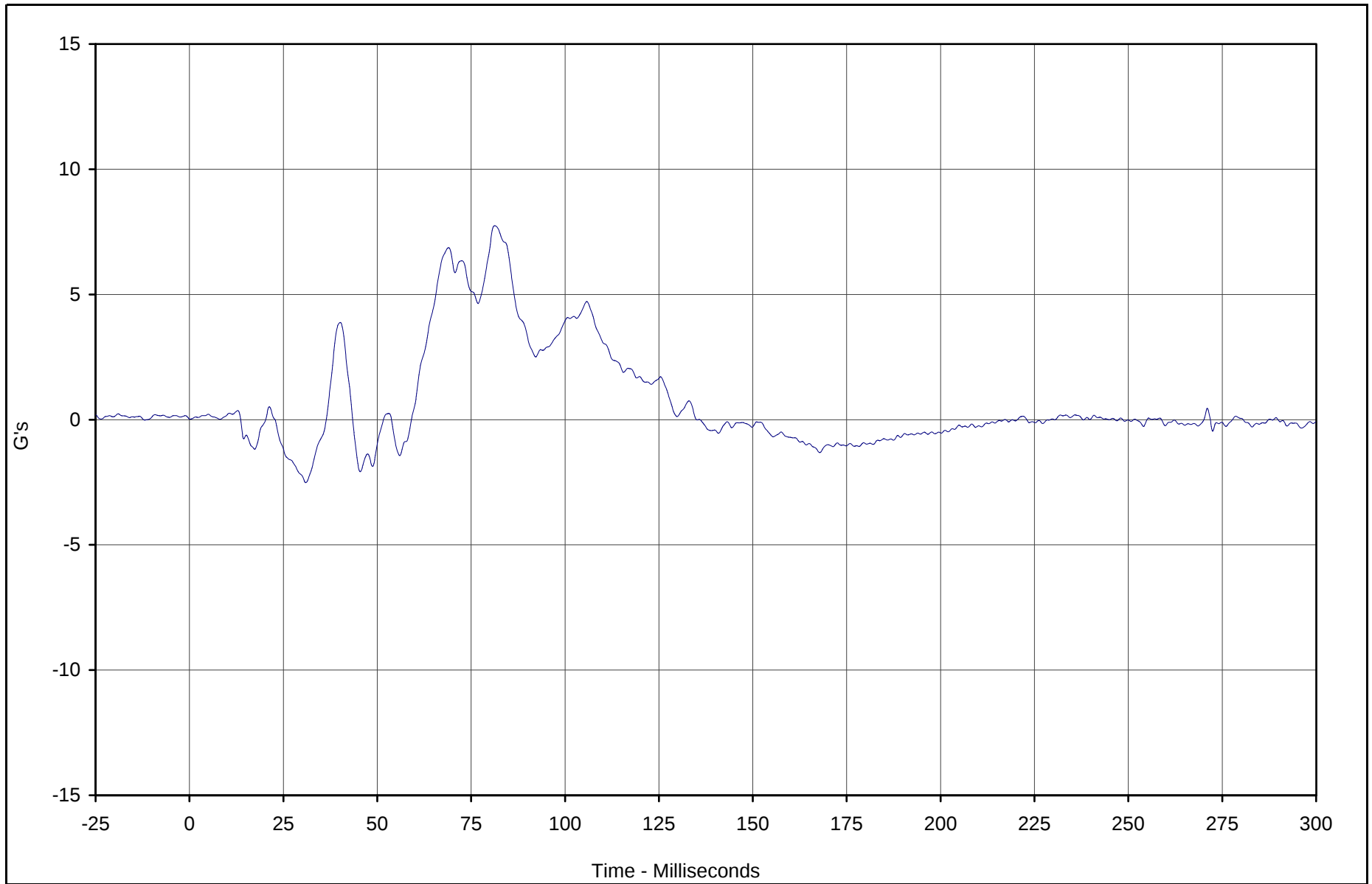


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Chest Redundant Y	017	FIL	G's	7.7	81.2	-2.5	31.0	180

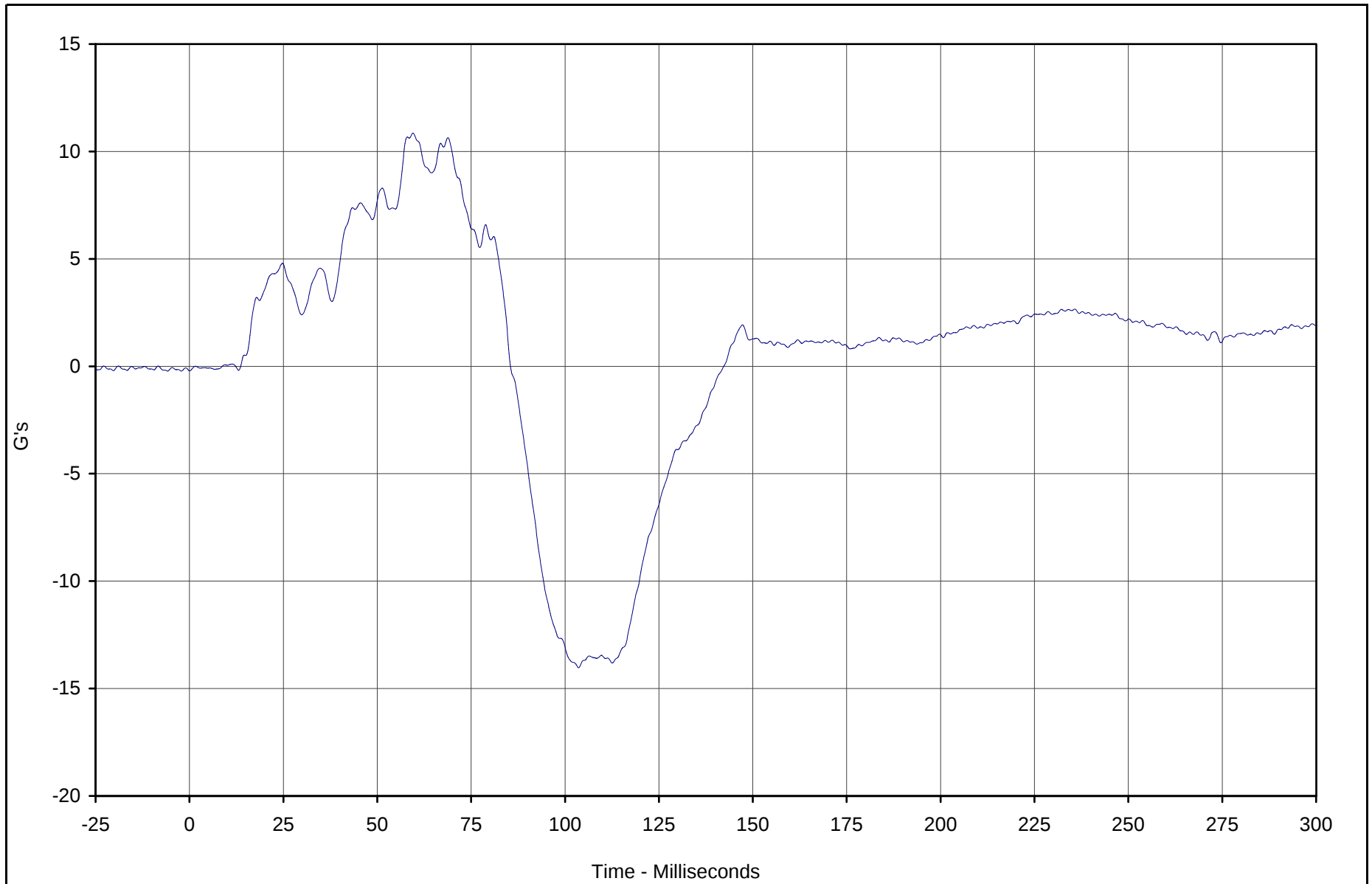


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Chest Redundant Z	018	FIL	G's	10.9	59.5	-14.0	103.6	180

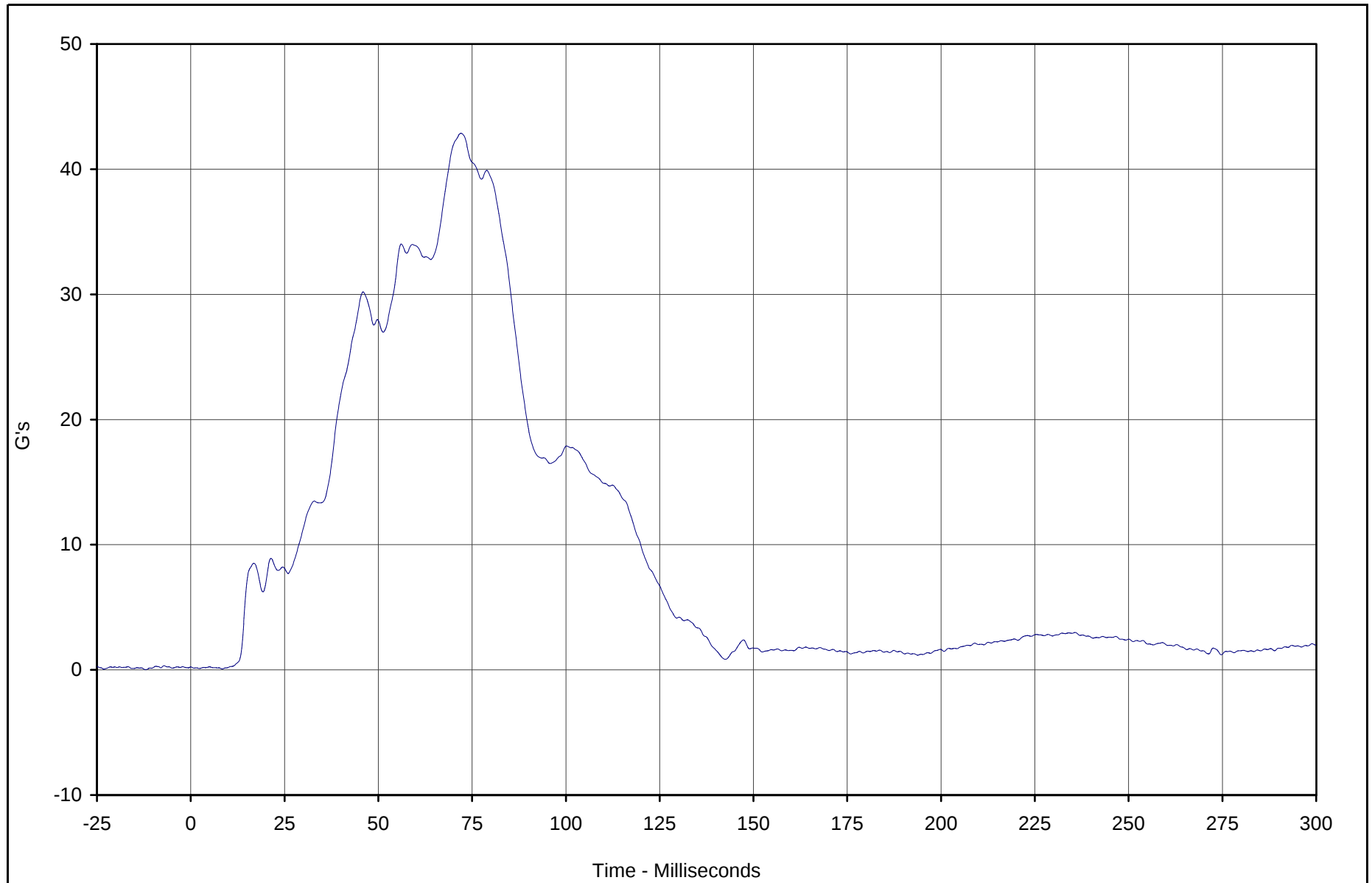


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Chest Resultant Redundant	016	RES	G's	42.9	72.0	0.1	8.4	180

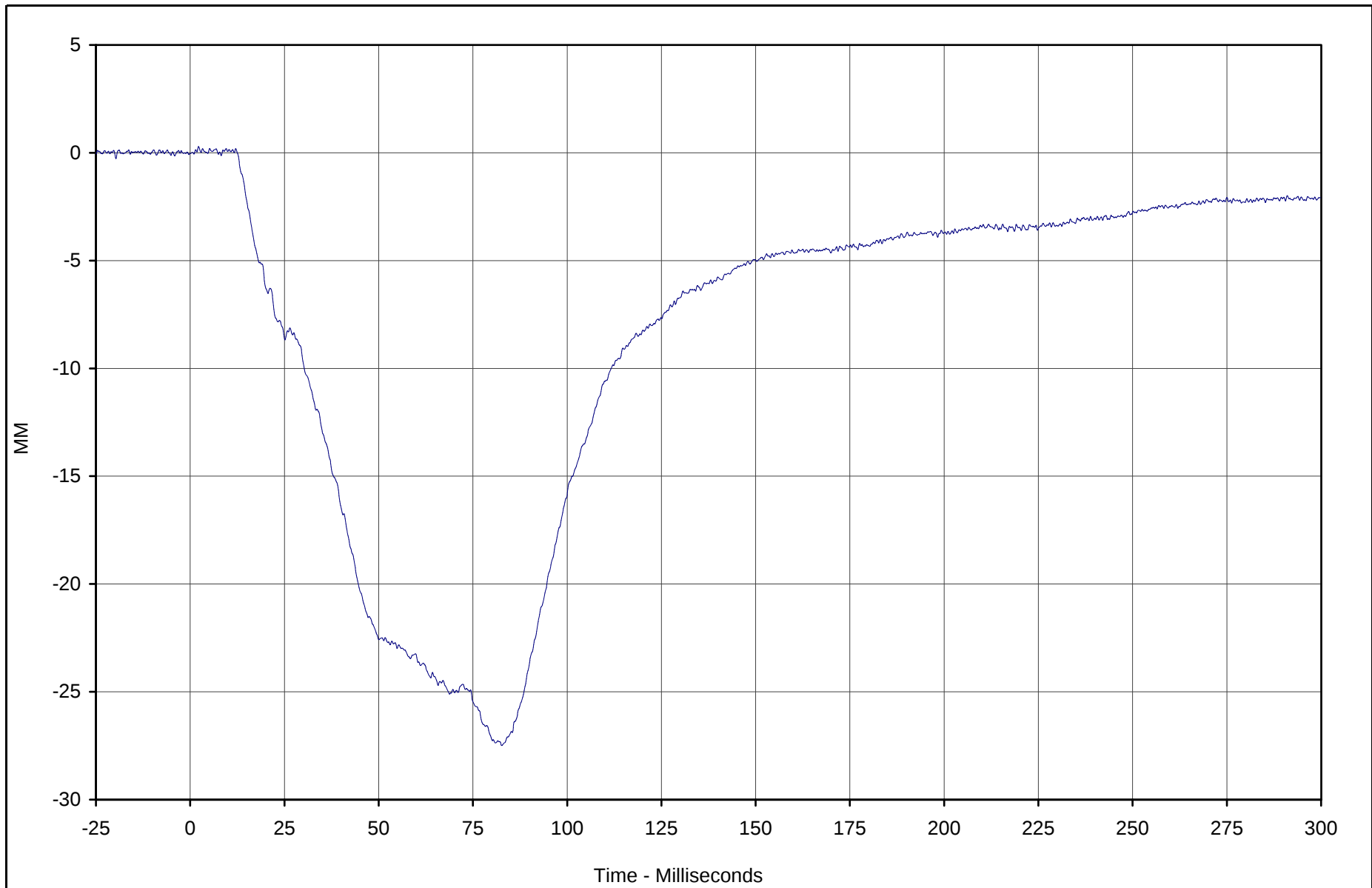


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Chest Displacement X	019	FIL	MM	0.3	2.2	-27.5	82.7	600

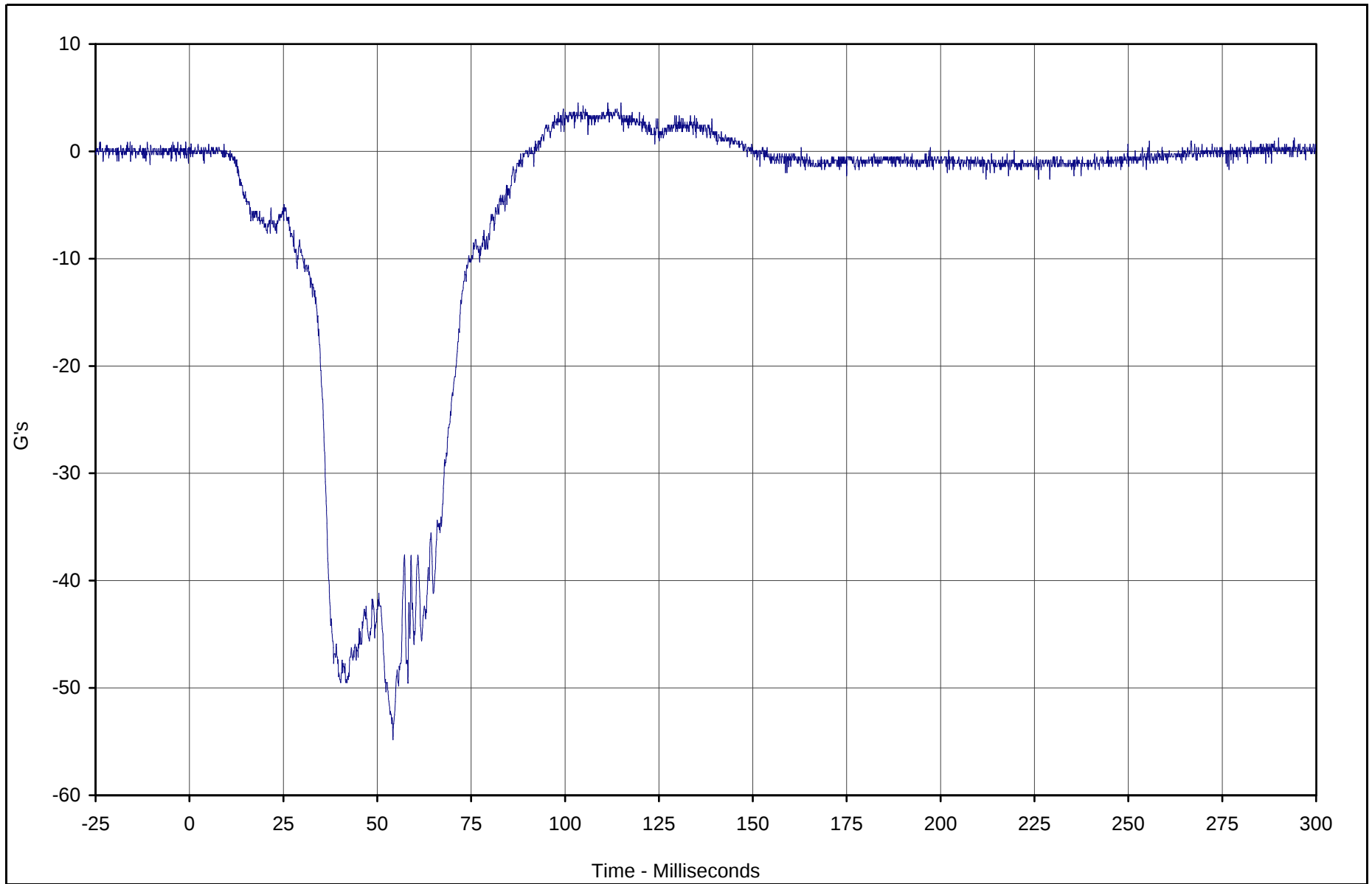


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Pelvis X	020	FIL	G's	4.5	103.5	-54.8	54.2	1000

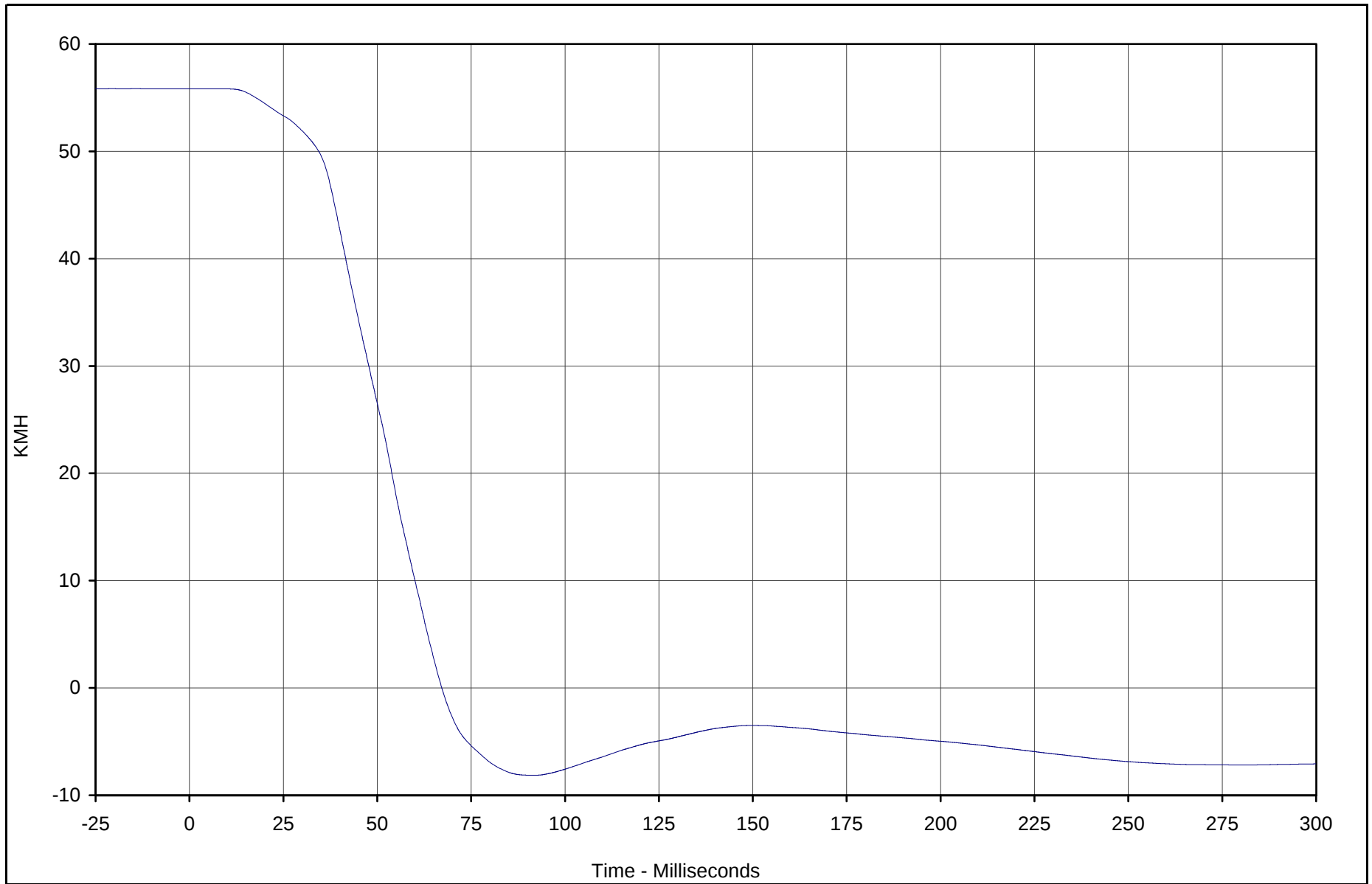


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Pelvis X Velocity	020	IN1	KMH	55.8	8.5	-8.1	91.8	180

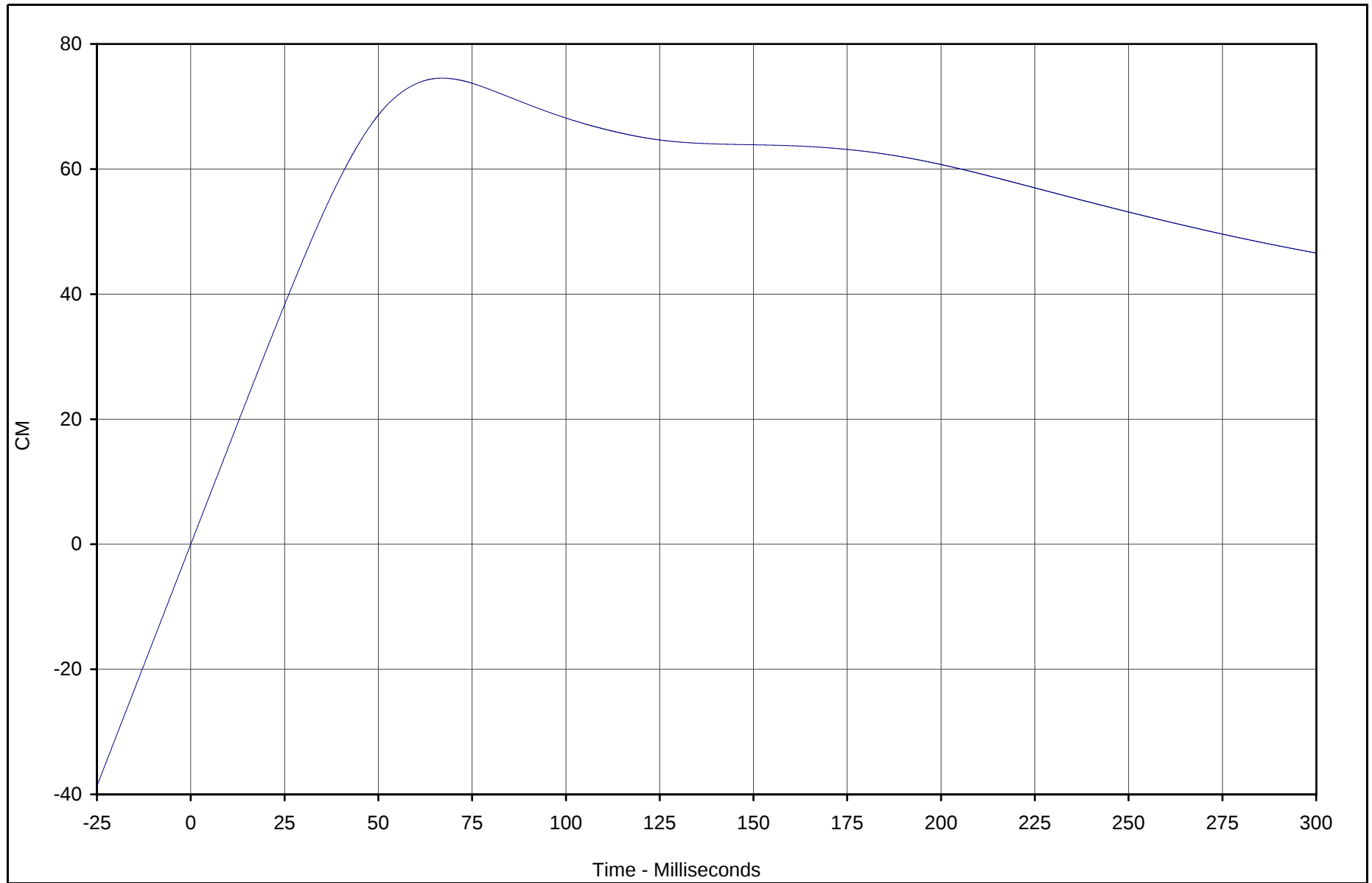


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Pelvis X Displ.	020	IN2	CM	74.5	67.0	0.0	0.0	180

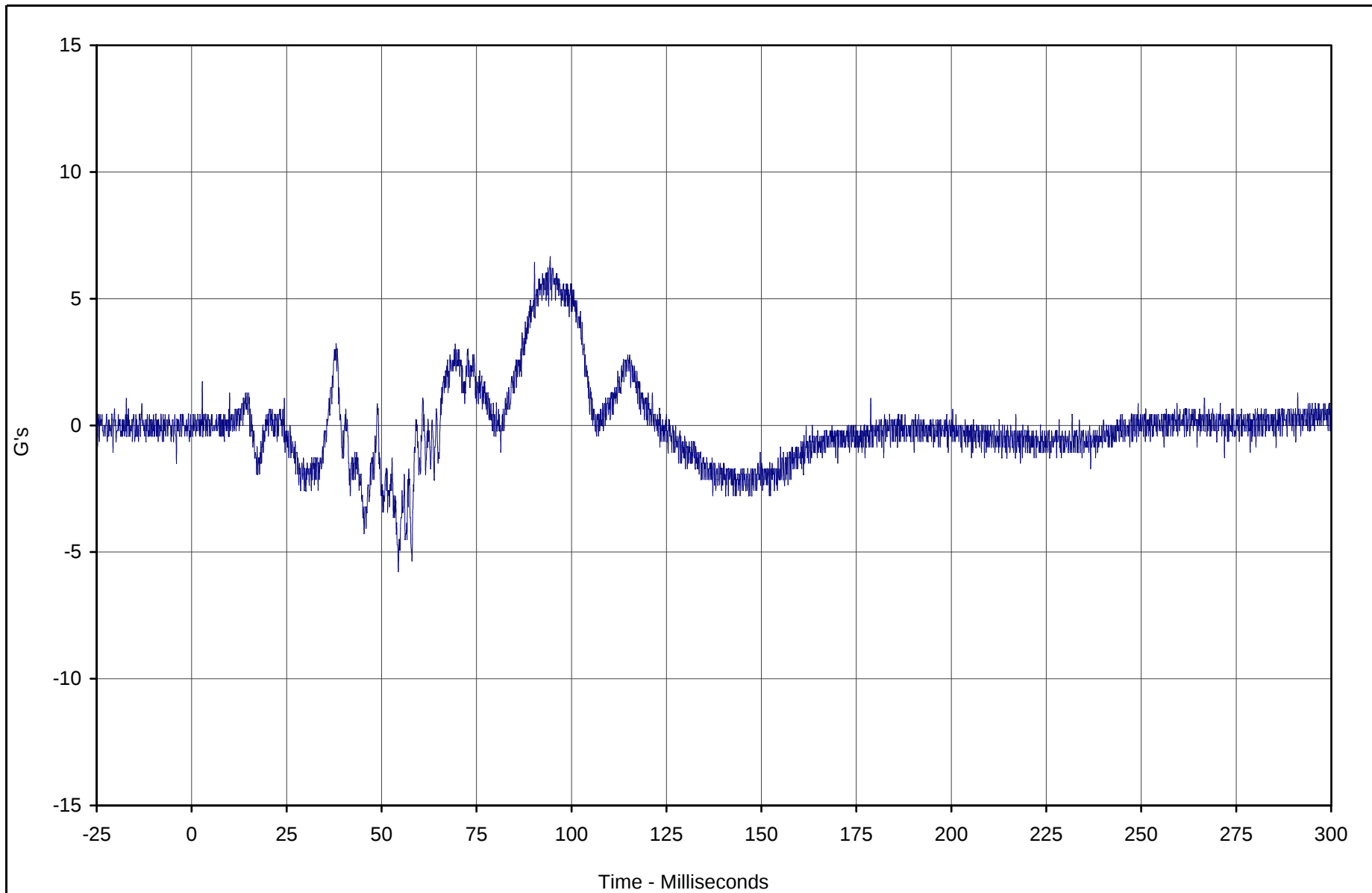


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Pelvis Y	021	FIL	G's	6.6	94.4	-5.8	54.4	1000

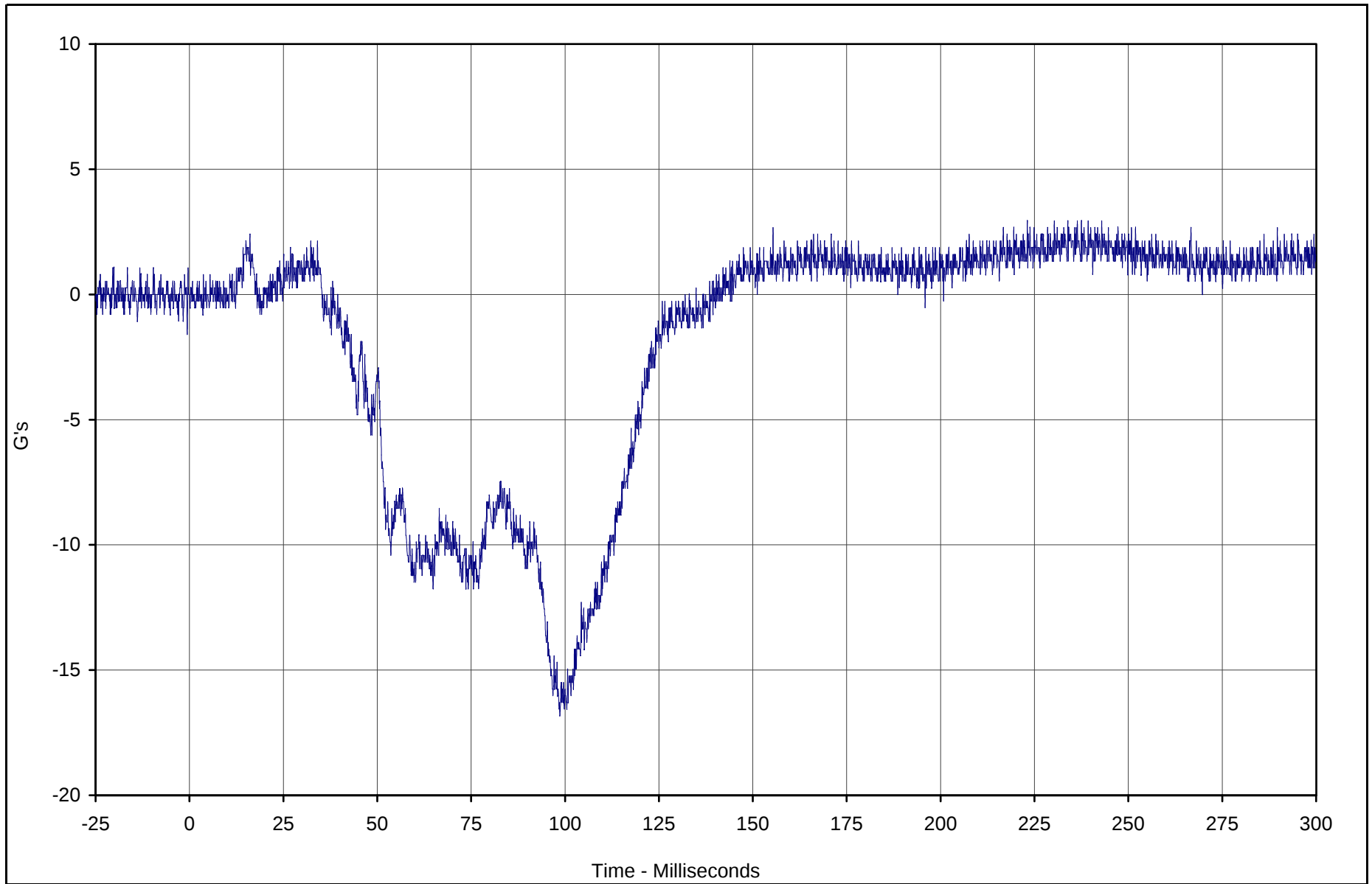


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Pelvis Z	022	FIL	G's	2.9	223.1	-16.8	98.6	1000

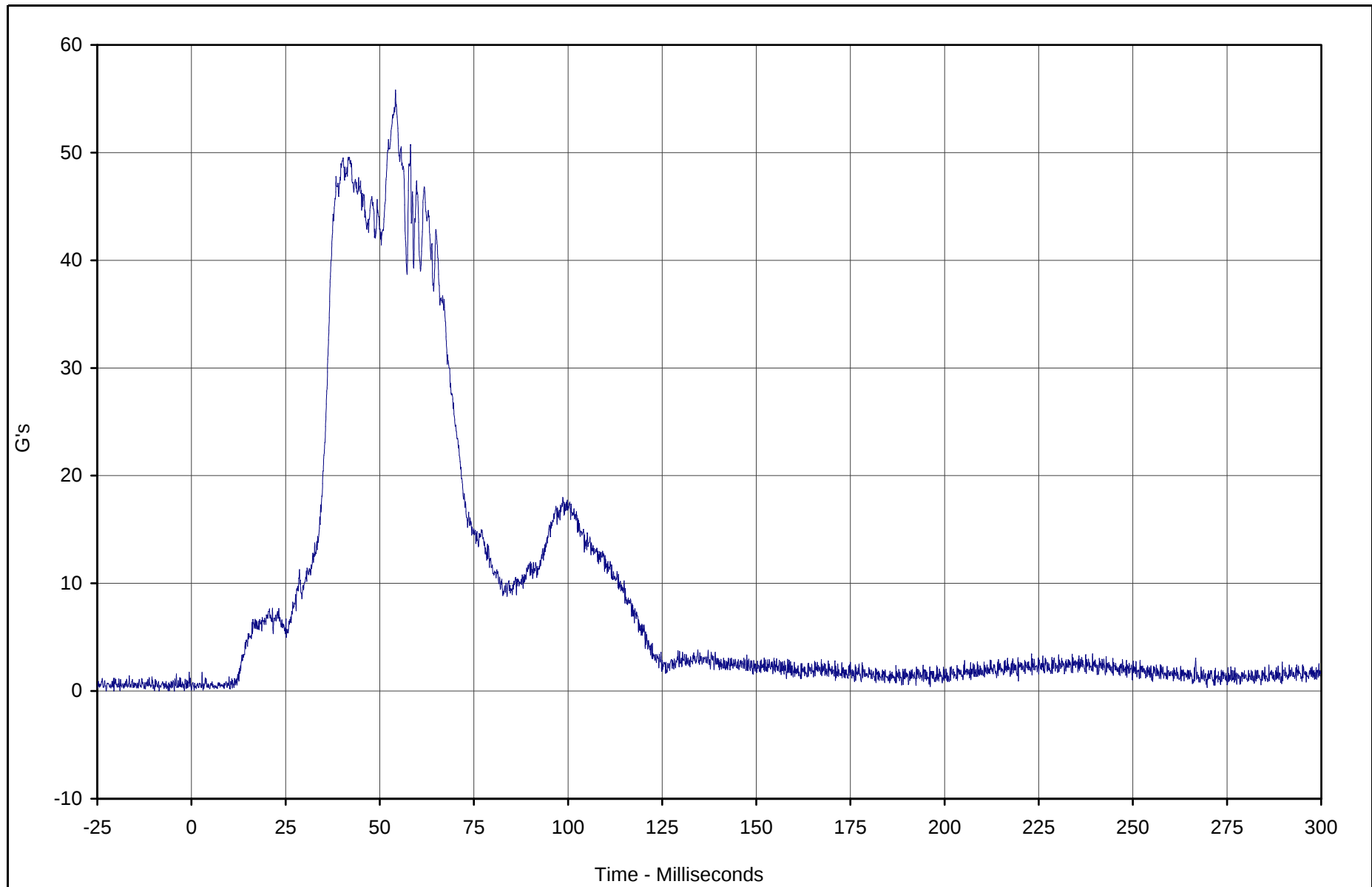


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Pelvis Resultant	023	RES	G's	55.8	54.2	0.1	0.0	1000

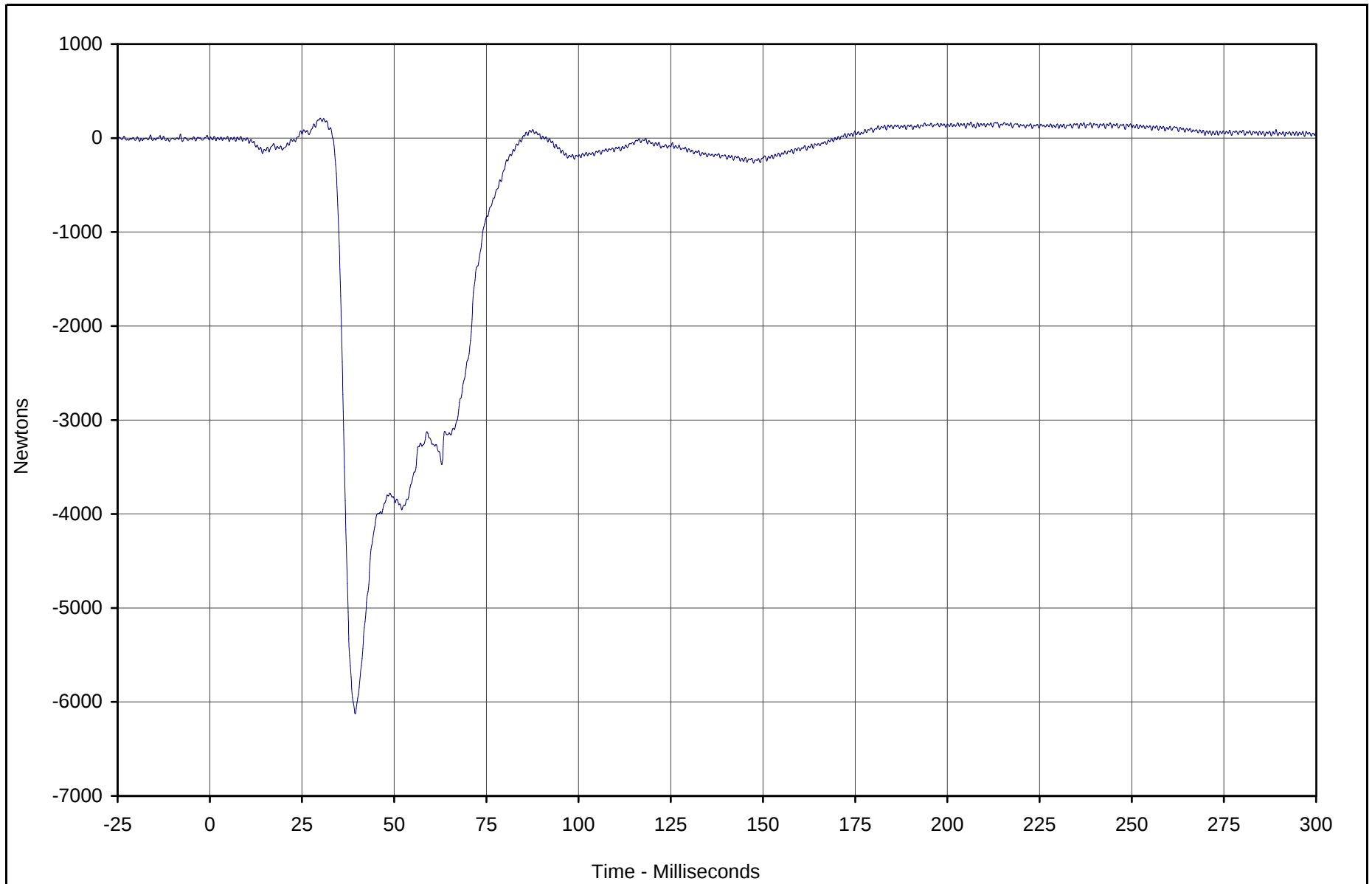


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Left Femur Force	023	FIL	Newtons	210.2	29.9	-6127.6	39.4	600

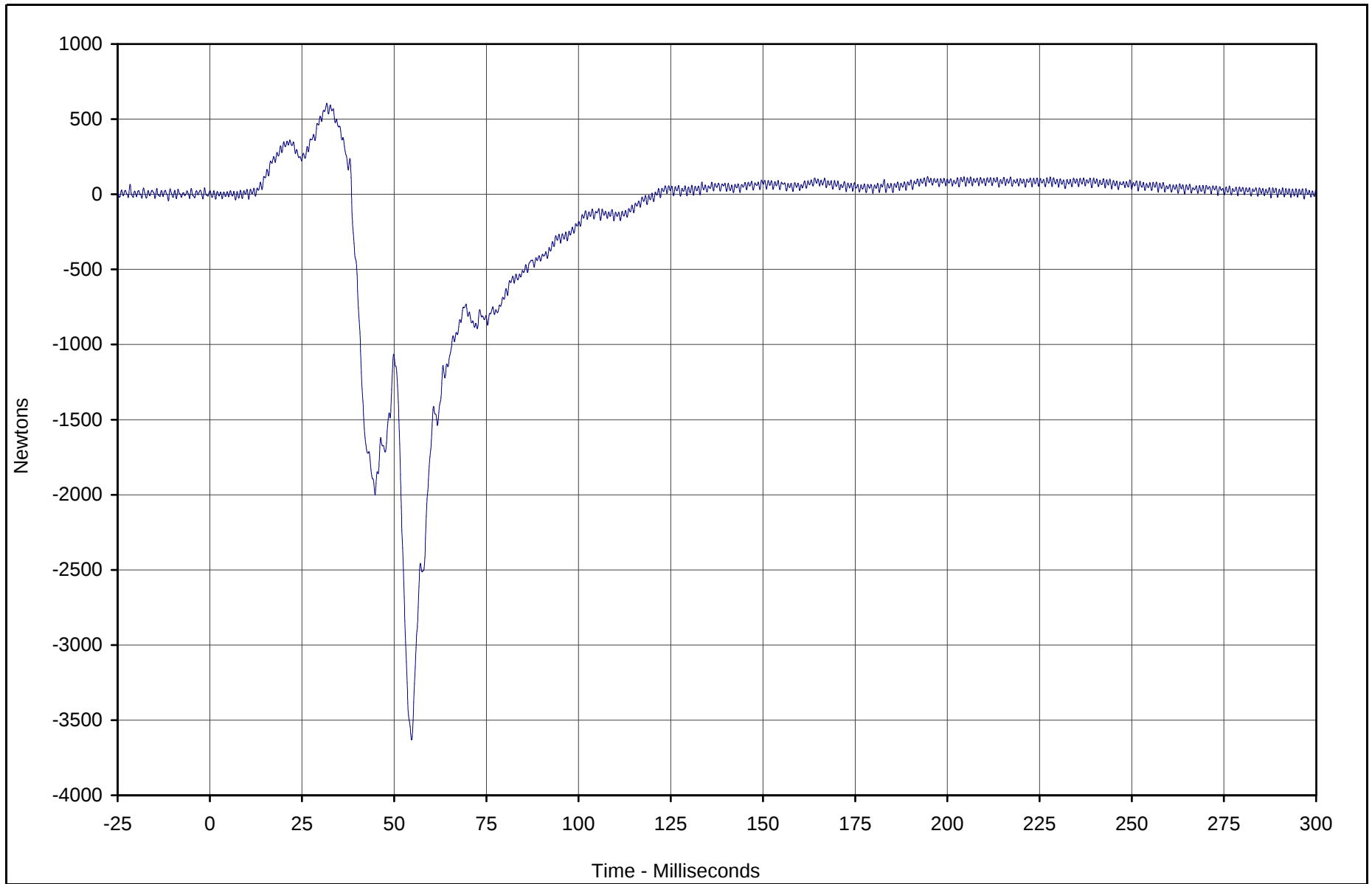


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Right Femur Force	024	FIL	Newtons	606.1	31.7	-3630.9	54.7	600

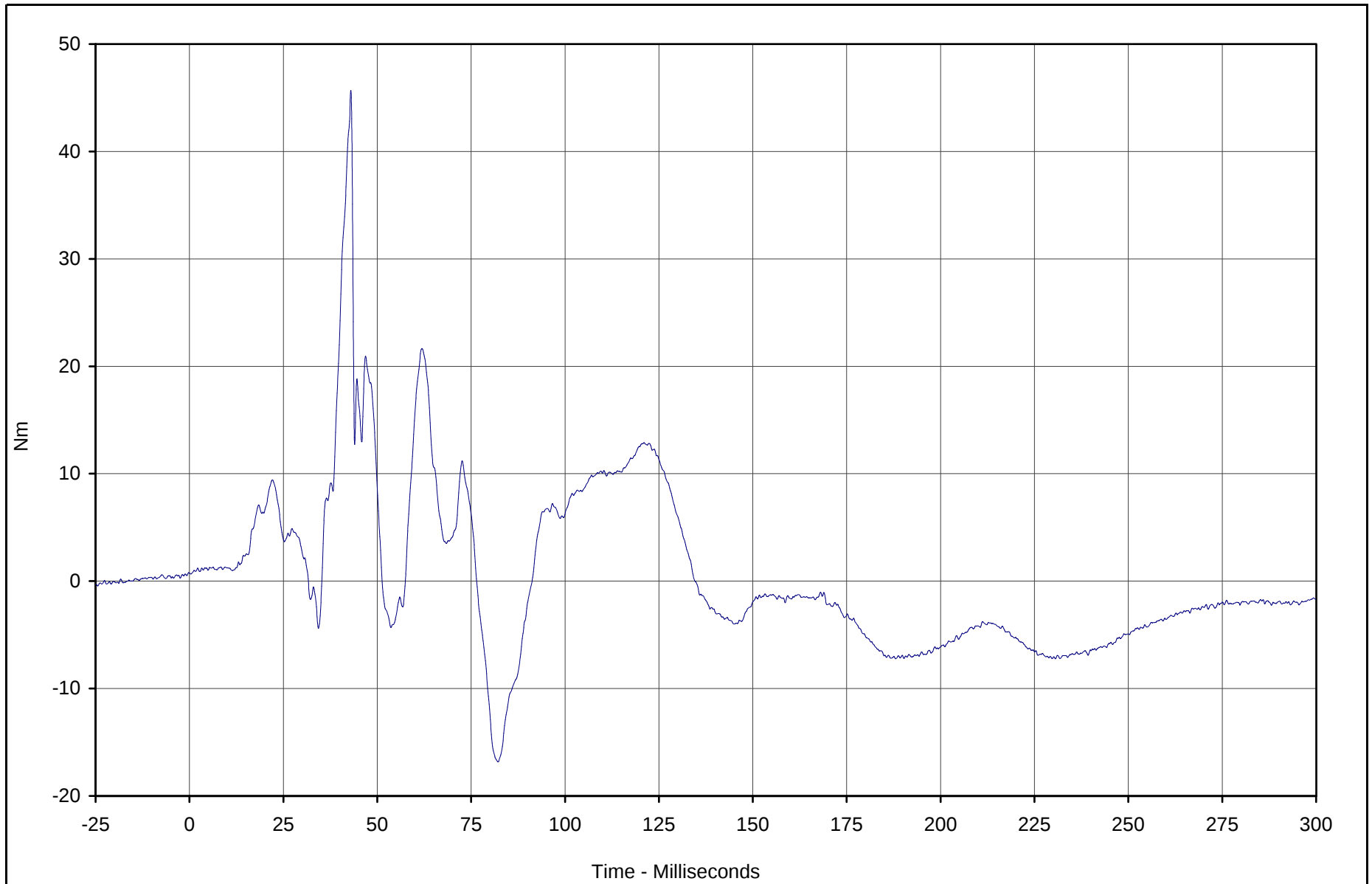


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Left Upper Tibia Moment X	025	FIL	Nm	45.7	43.0	-16.8	82.2	600

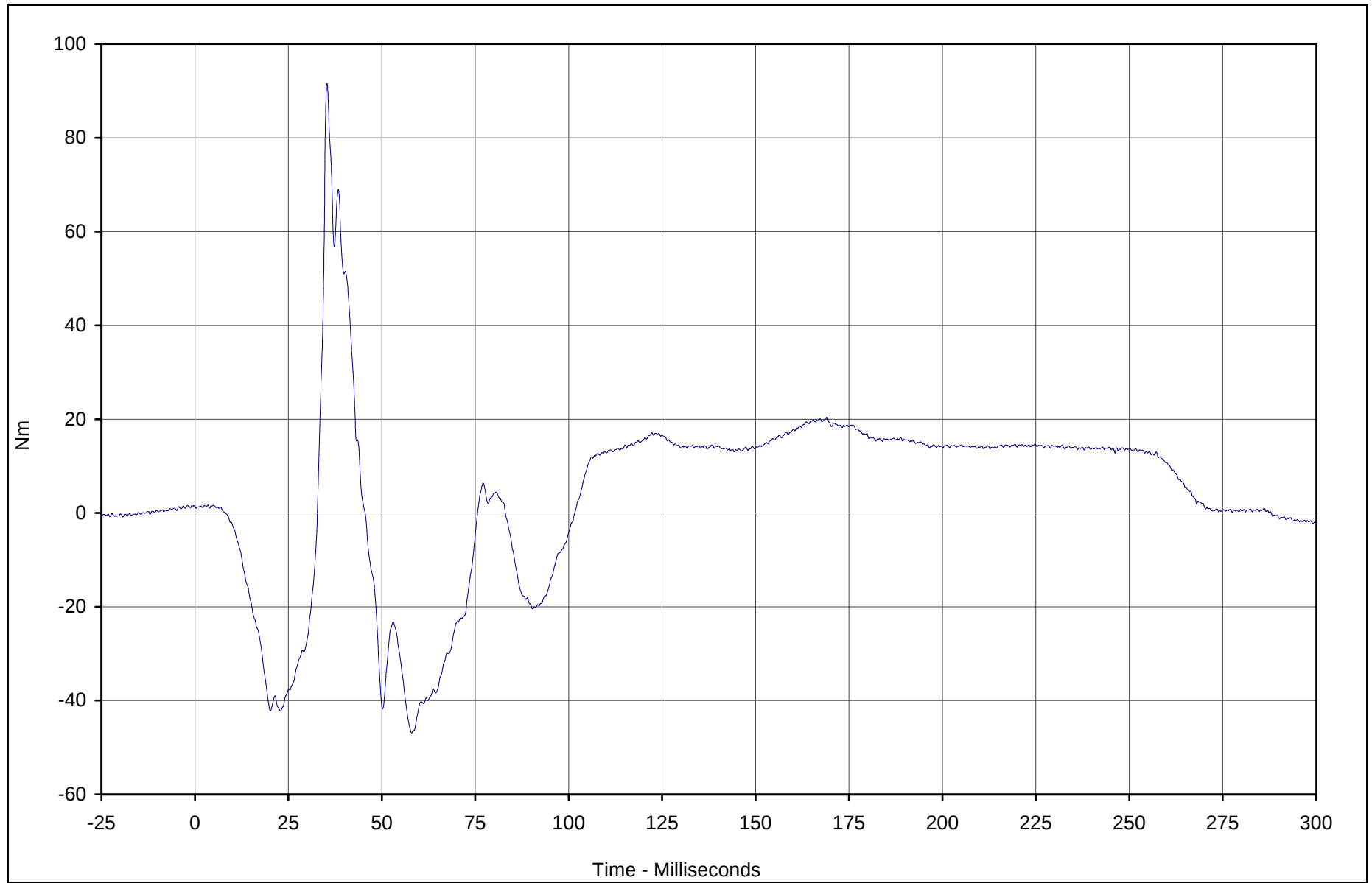


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Left Upper Tibia Moment Y	026	FIL	Nm	91.5	35.3	-46.9	58.0	600

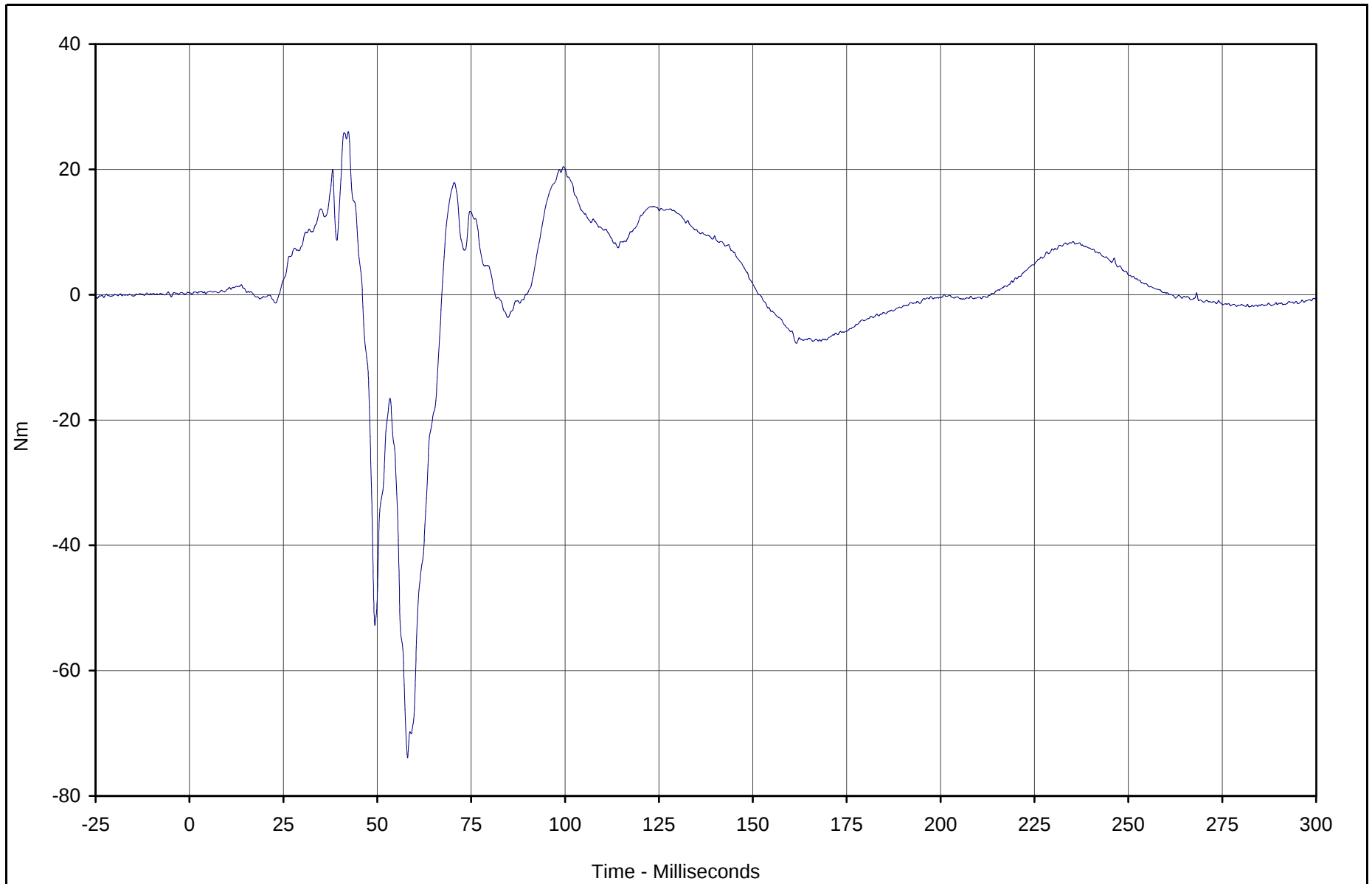


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Right Upper Tibia Moment X	027	FIL	Nm	26.0	42.3	-73.9	58.1	600

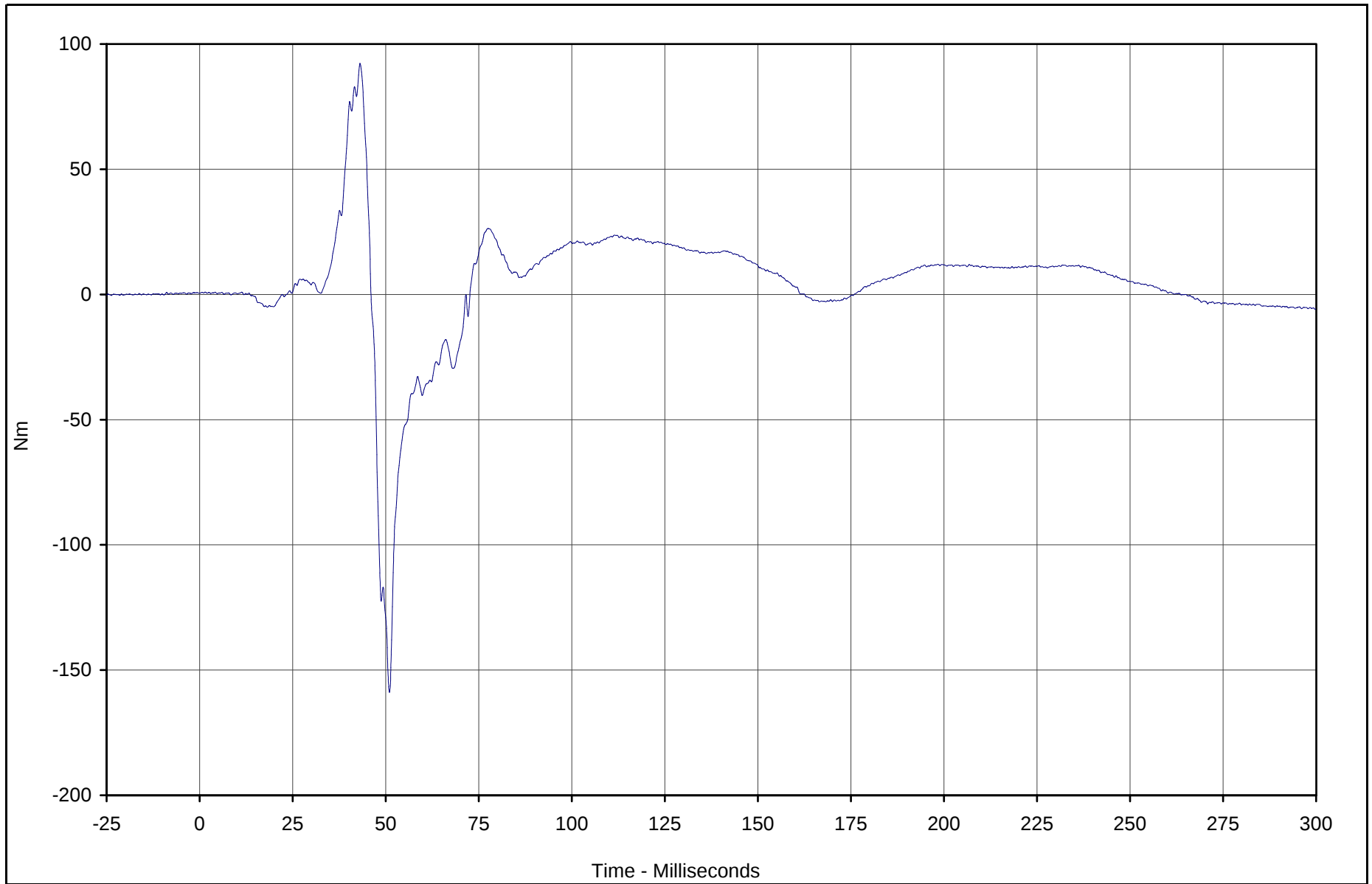


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Right Upper Tibia Moment Y	028	FIL	Nm	92.3	43.1	-159.0	51.0	600

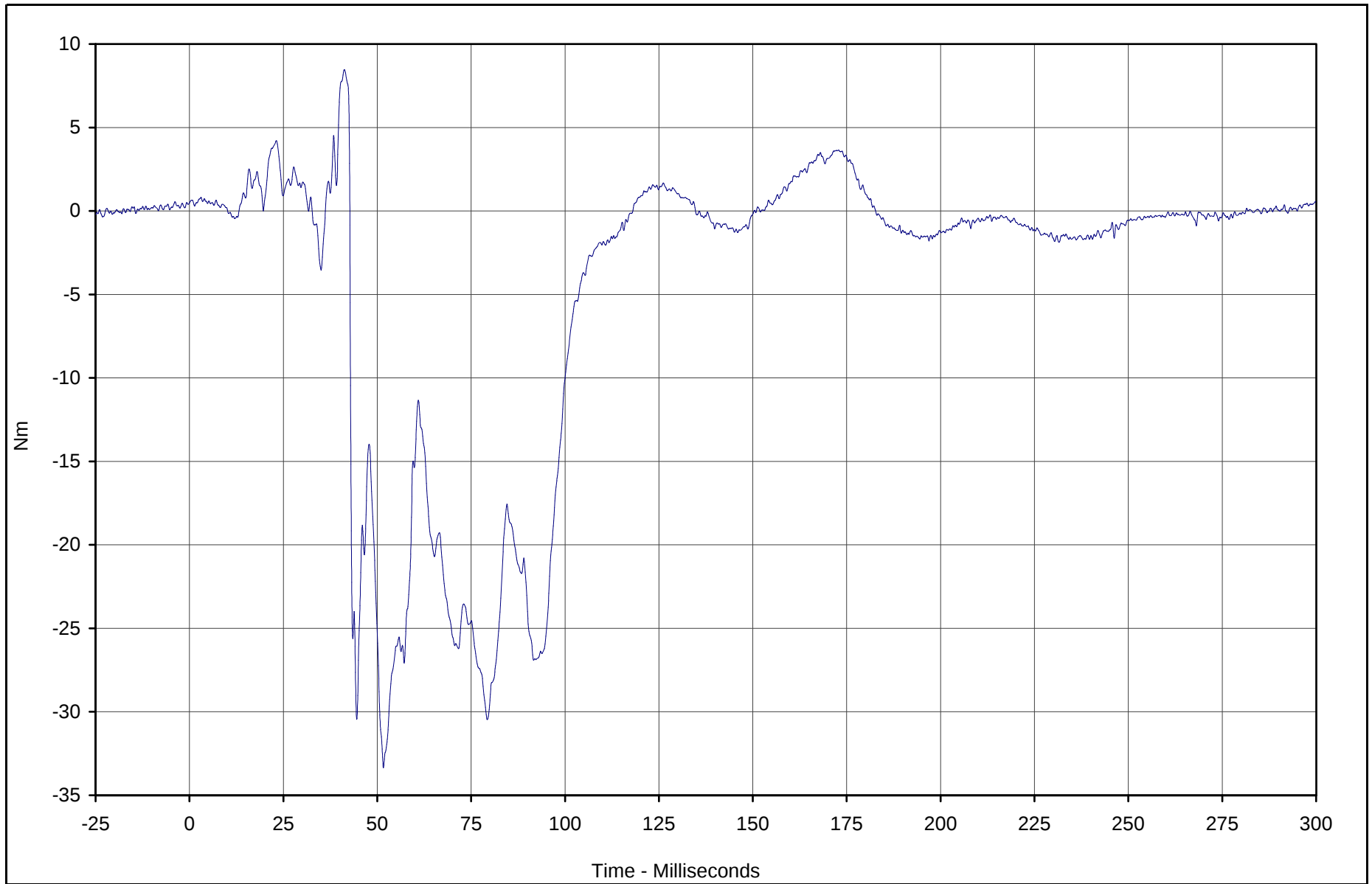


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Test Date: 5/14/02

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Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Left Lower Tibia Moment X	029	FIL	Nm	8.5	41.2	-33.3	51.6	600

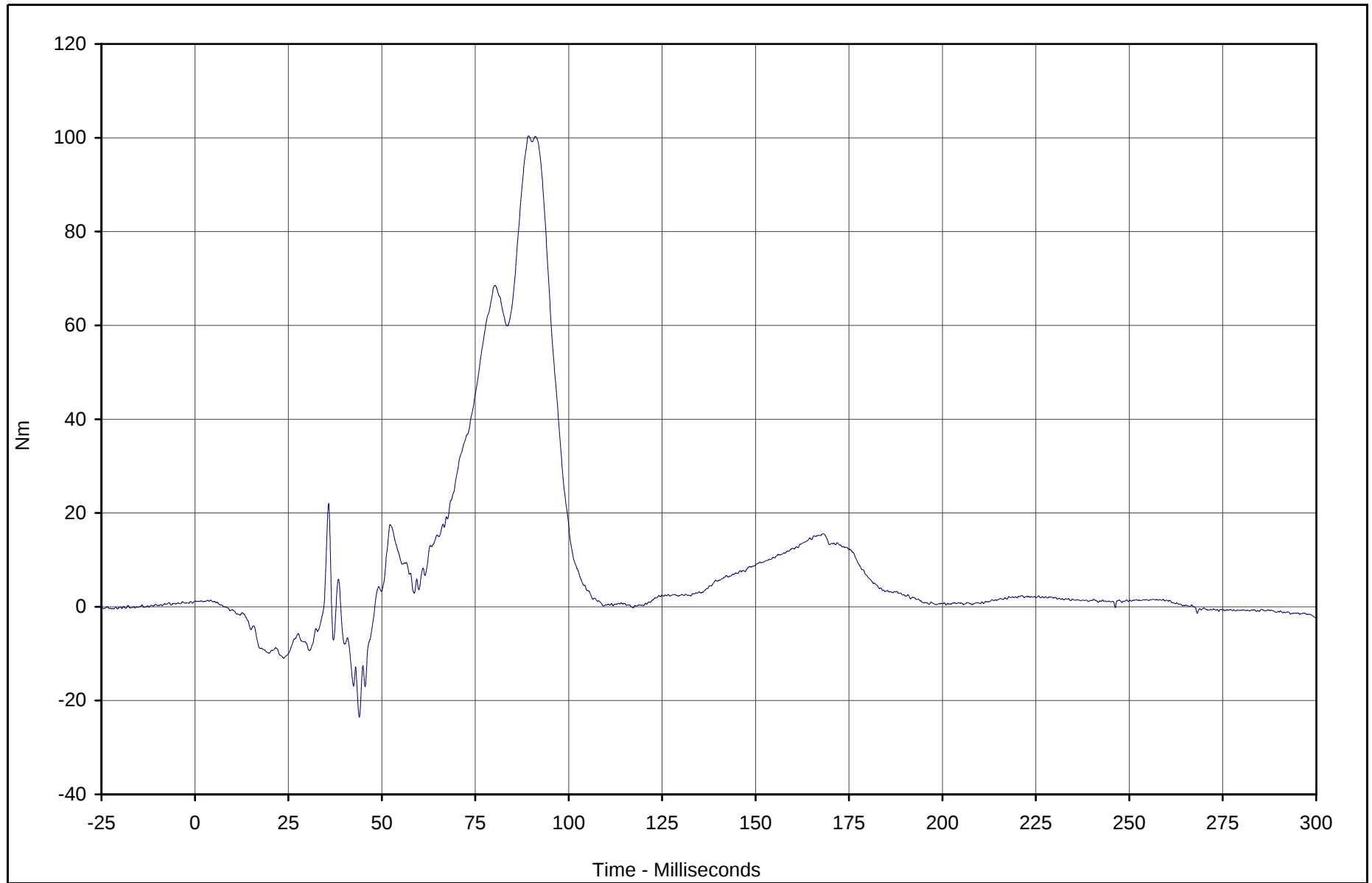


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Left Lower Tibia Moment Y	030	FIL	Nm	100.4	89.3	-23.5	44.0	600

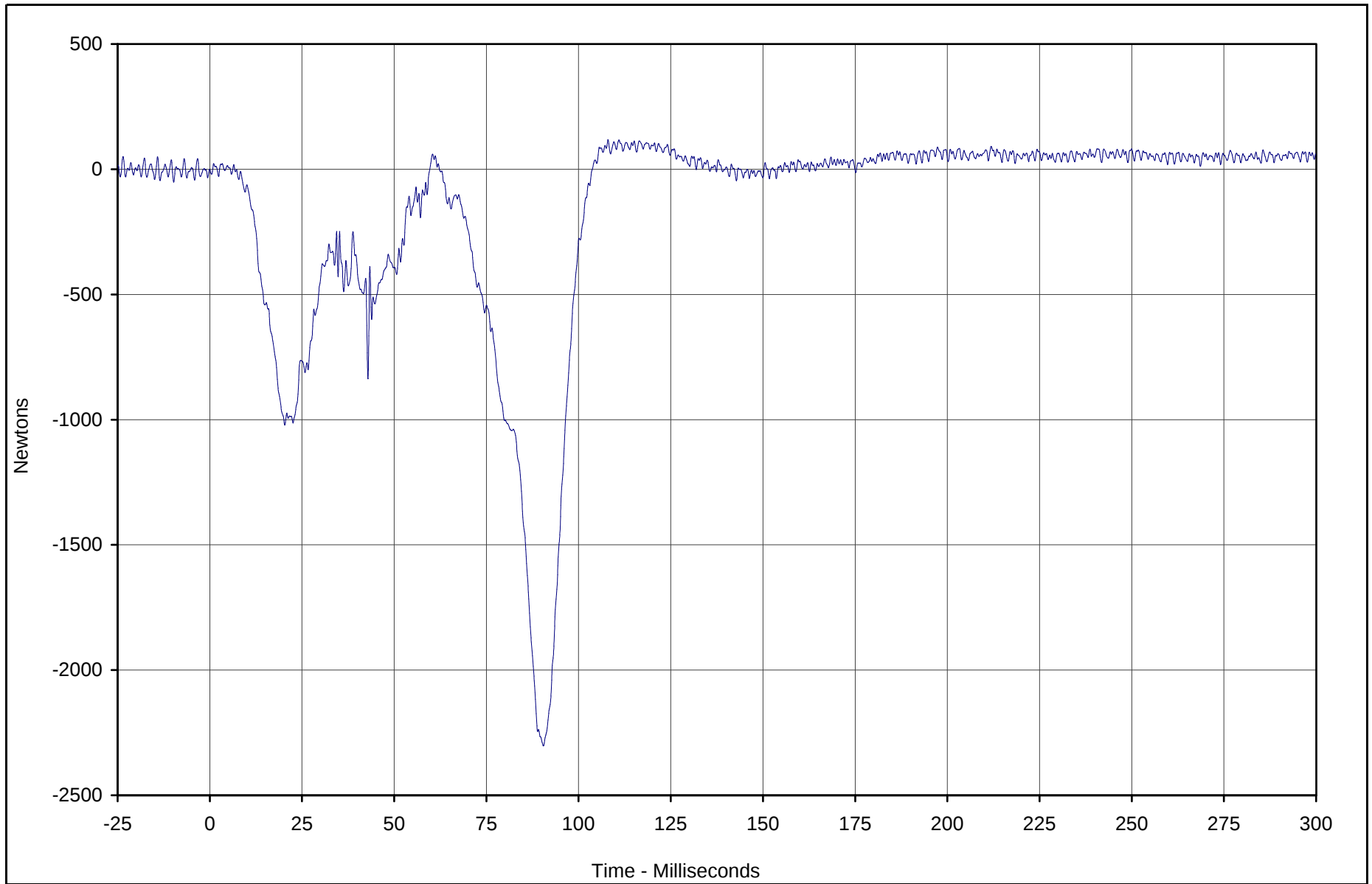


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Left Lower Tibia Force Z	031	FIL	Newtons	118.1	108.0	-2303.3	90.5	600

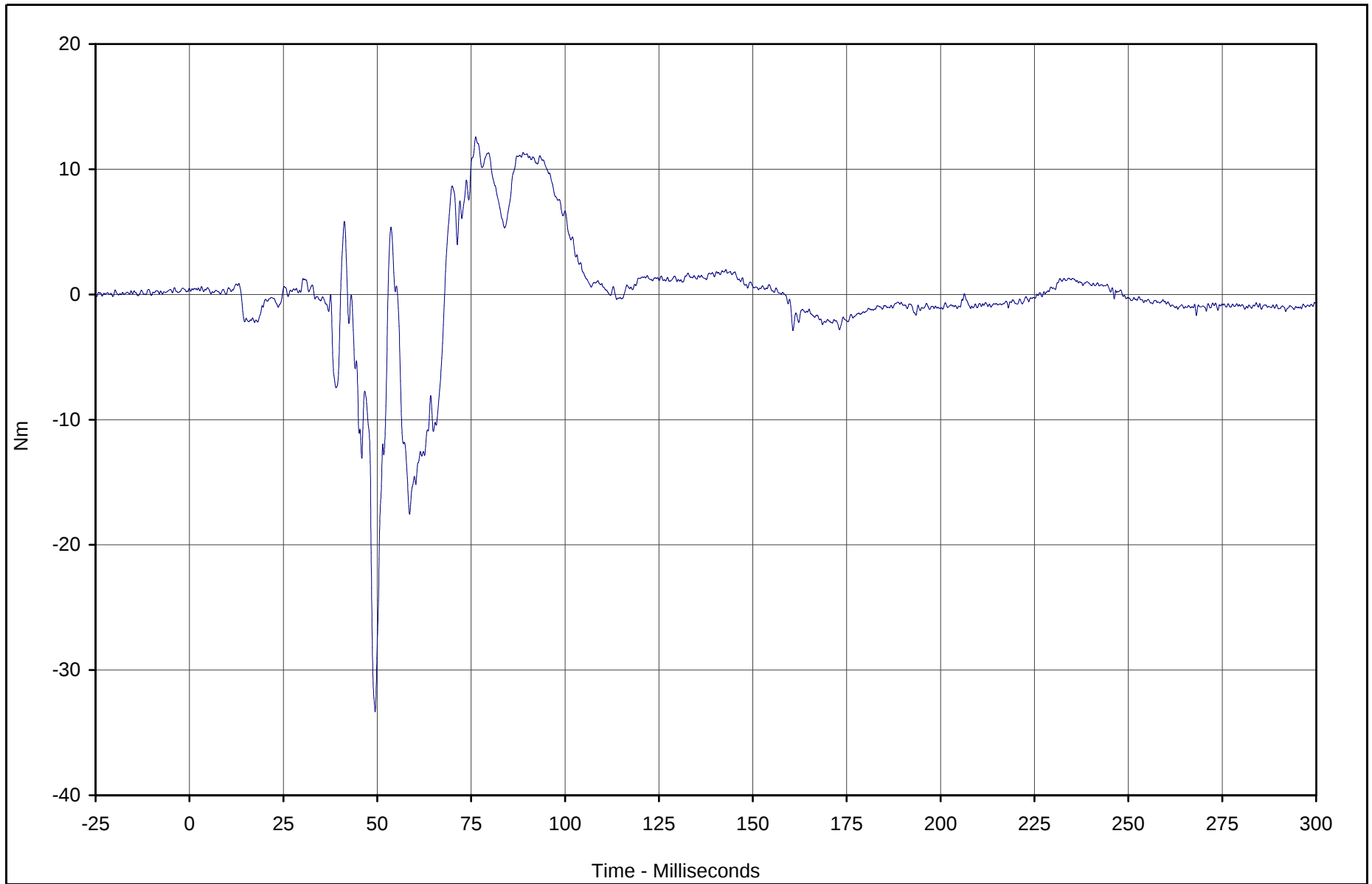


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Right Lower Tibia Moment X	032	FIL	Nm	12.6	76.2	-33.3	49.5	600



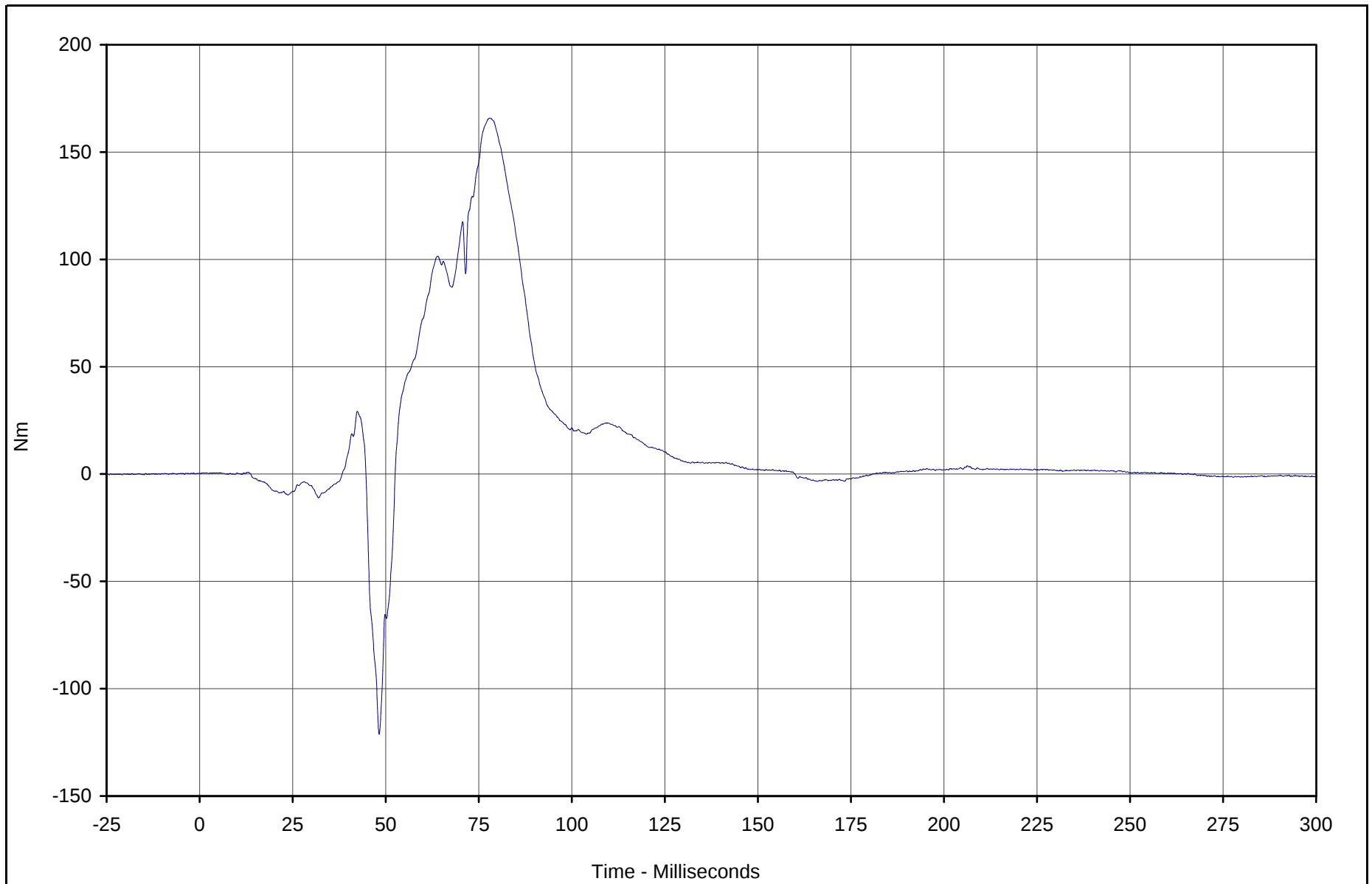
Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

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Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Right Lower Tibia Moment Y	033	FIL	Nm	165.9	78.0	-121.2	48.2	600



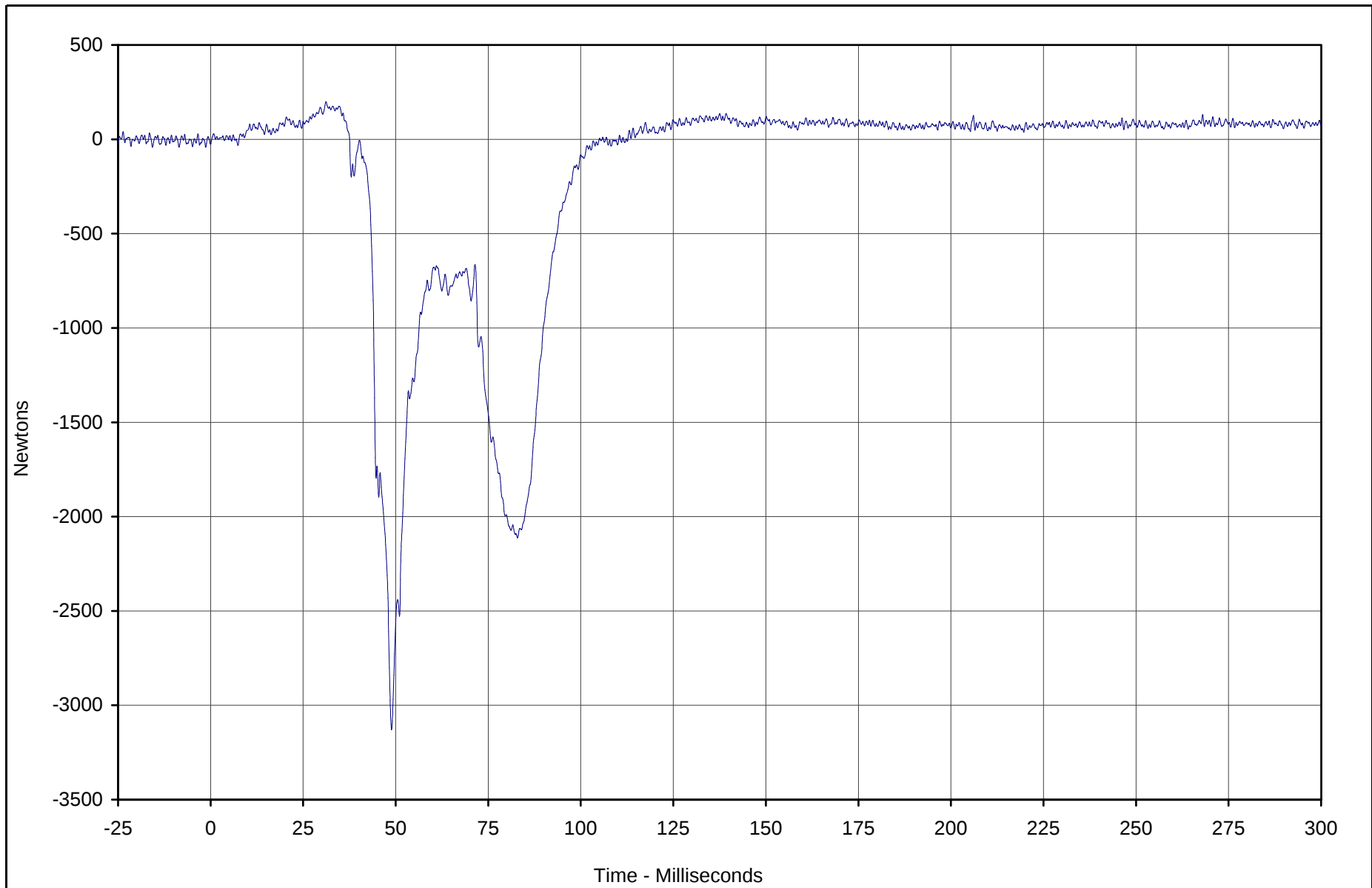
Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

KAR22001-08



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Right Lower Tibia Force Z	034	FIL	Newtons	199.6	31.2	-3130.3	48.9	600

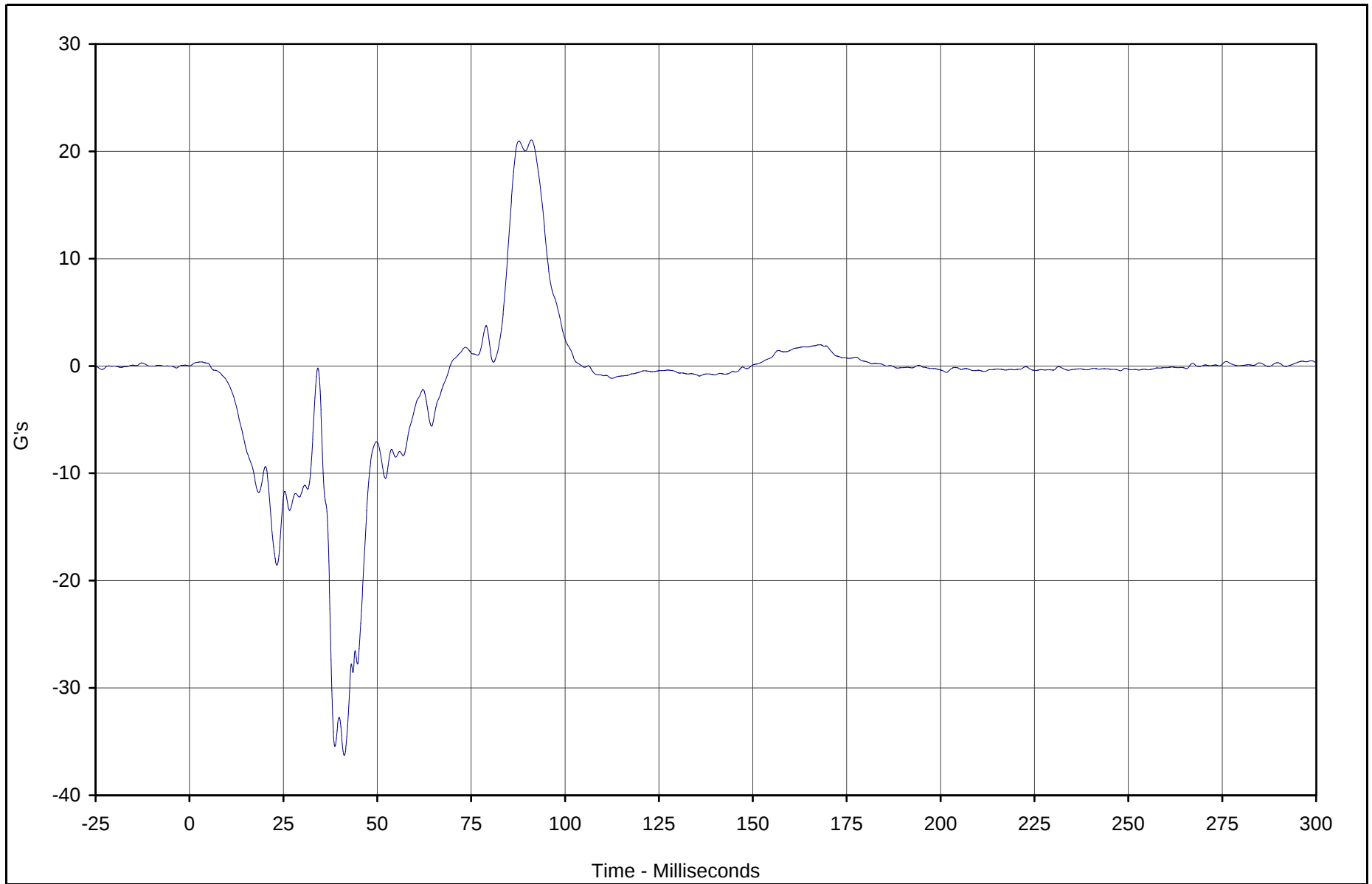


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Left Foot Aft X	035	FIL	G's	21.1	91.0	-36.3	41.2	180

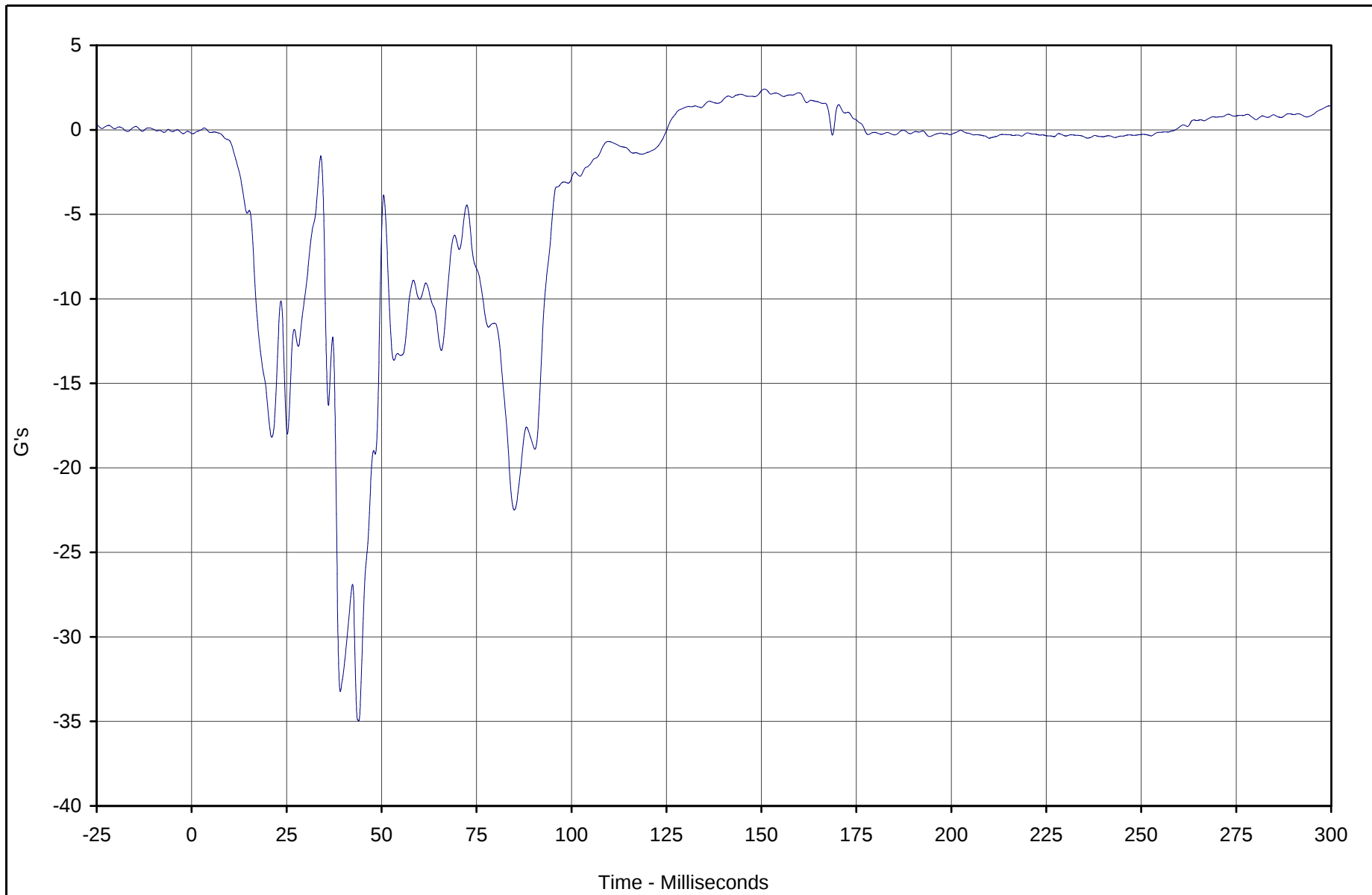


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Left Foot Aft Z	036	FIL	G's	2.4	150.8	-35.0	44.0	180



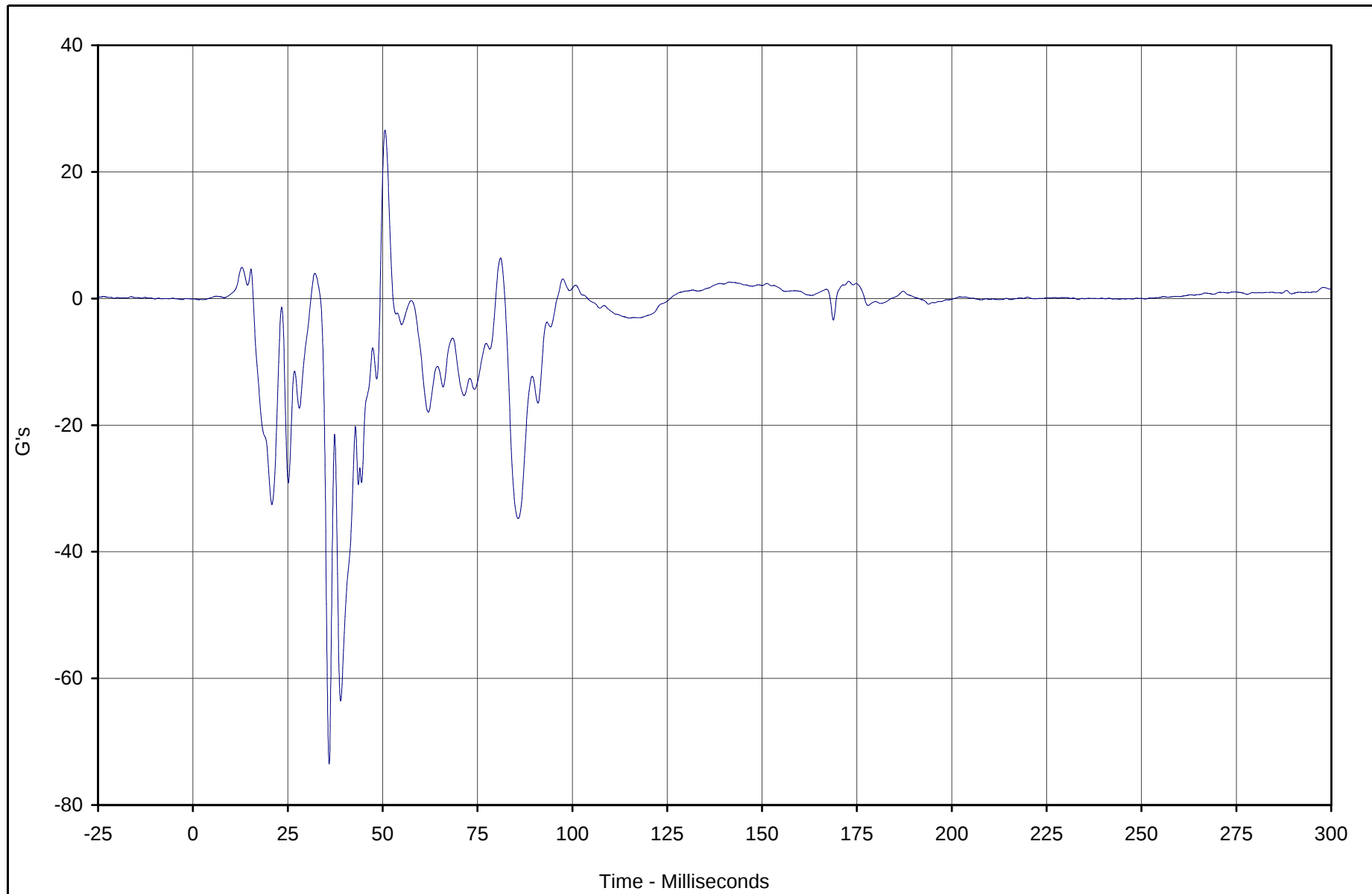
Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

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Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Left Foot Fore Z	037	FIL	G's	26.6	50.6	-73.5	35.9	180



Test Vehicle: 2002 Mazda MPV LX Minivan

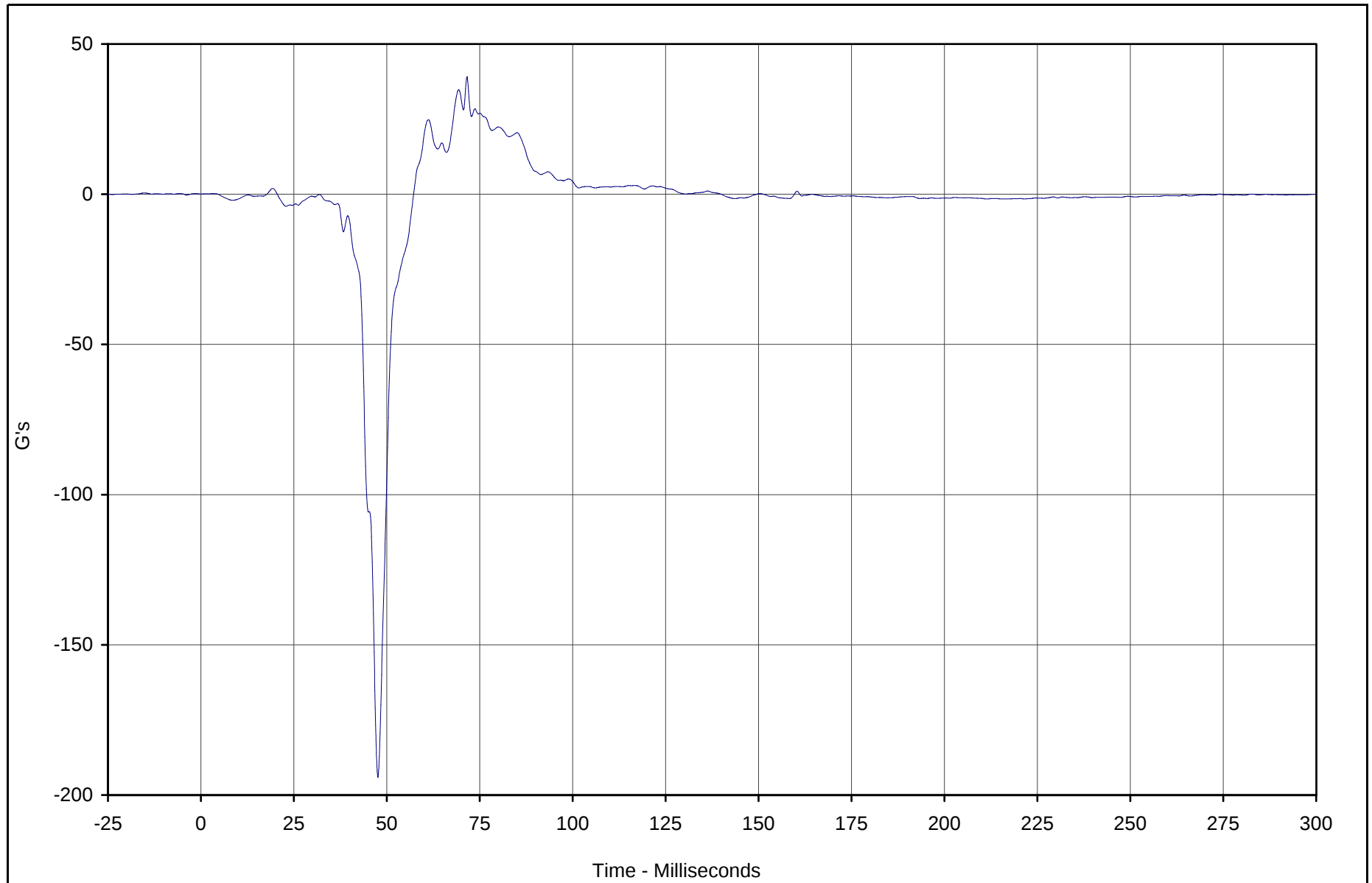
Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

KAR22001-08

B-55



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Right Foot Aft X	038	FIL	G's	39.2	71.6	-194.2	47.6	180



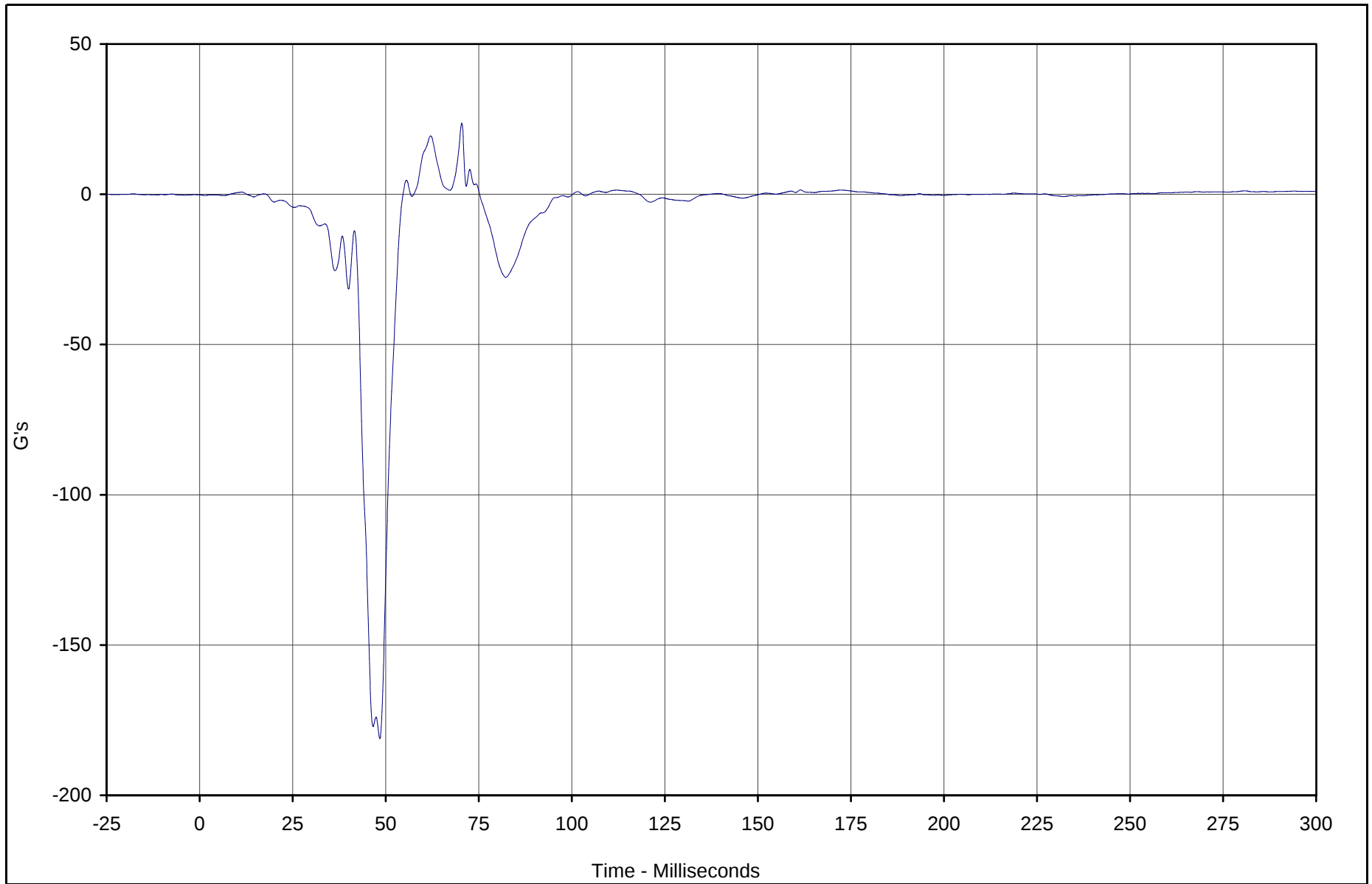
Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

KAR22001-08



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Right Foot Aft Z	039	FIL	G's	23.7	70.4	-181.2	48.4	180



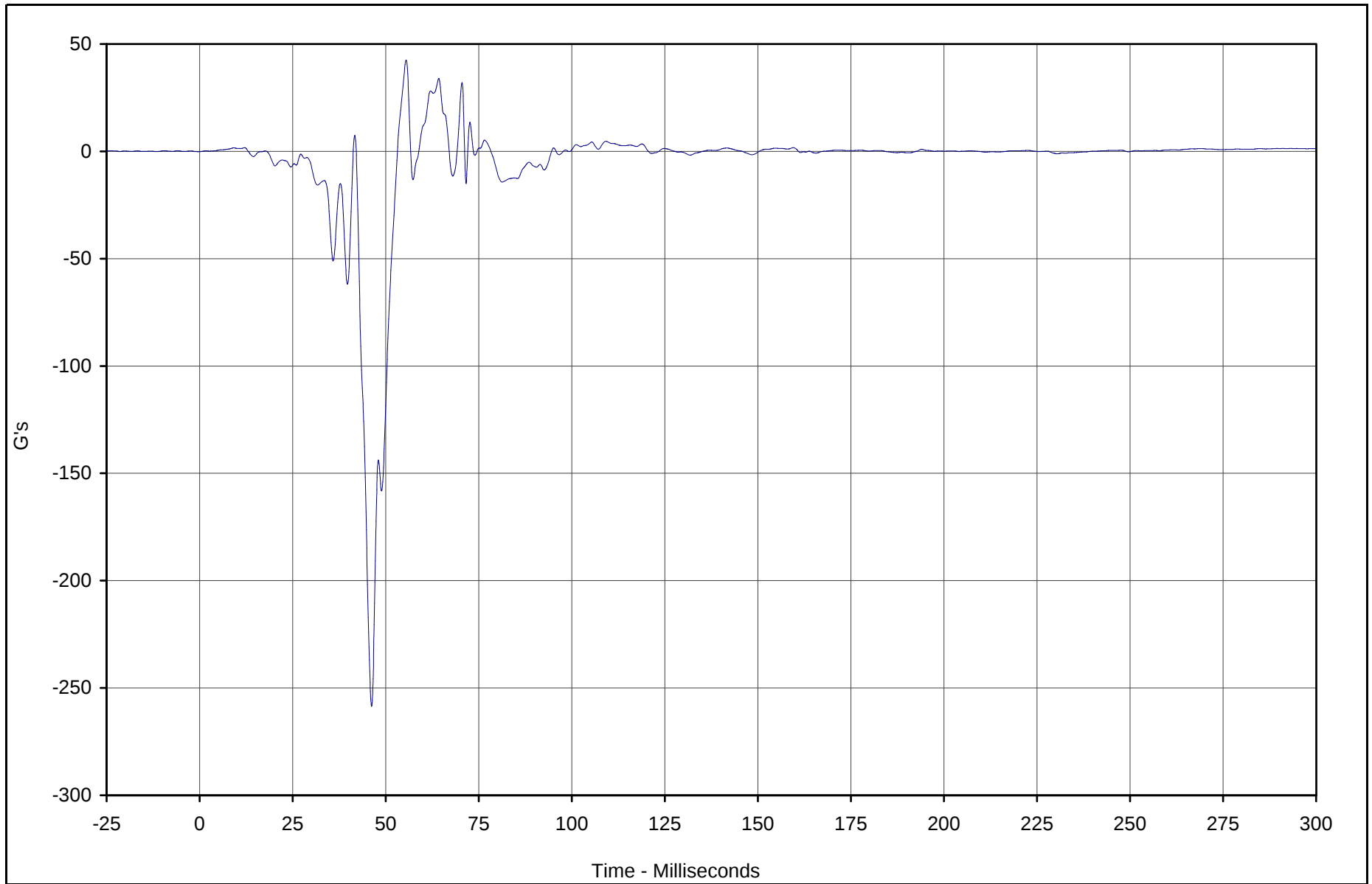
Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

B-57



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Right Foot Fore Z	040	FIL	G's	42.6	55.5	-258.6	46.2	180



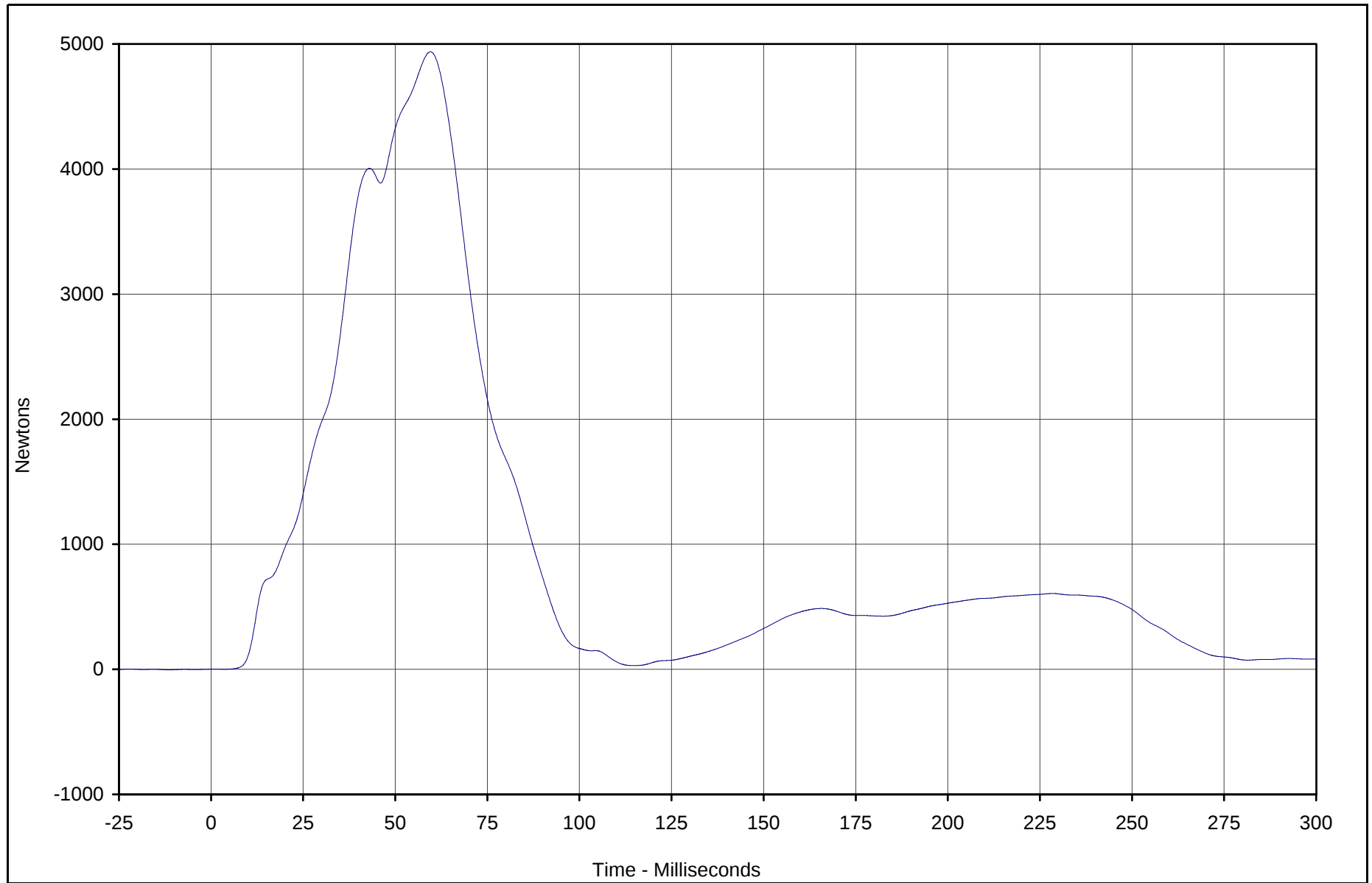
Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

KAR22001-08



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Lap Belt Force	041	FIL	Newtons	4937.9	59.6	0.7	3.6	60

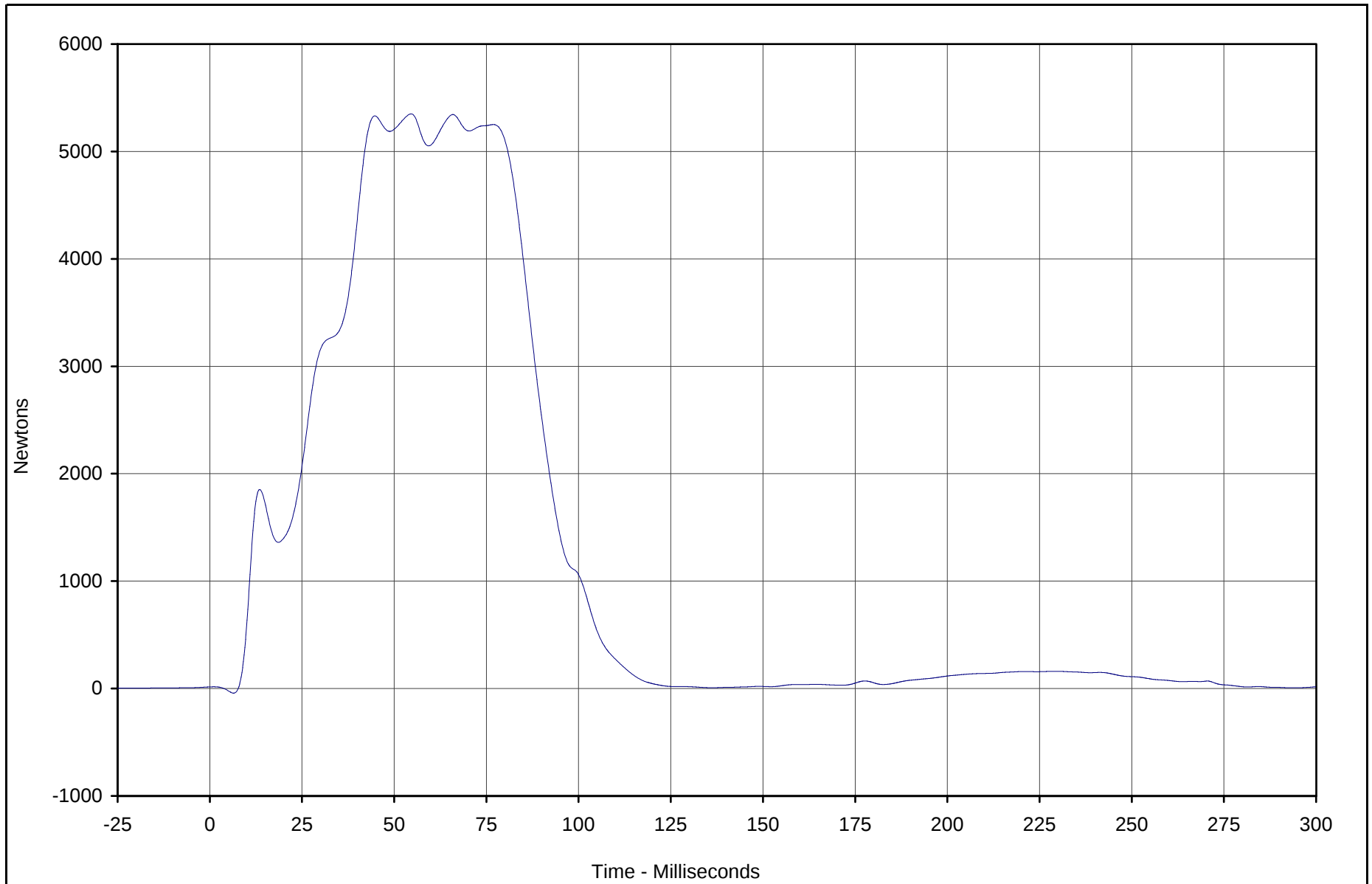


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Shoulder Belt Force	042	FIL	Newtons	5350.0	54.6	-42.8	6.4	60



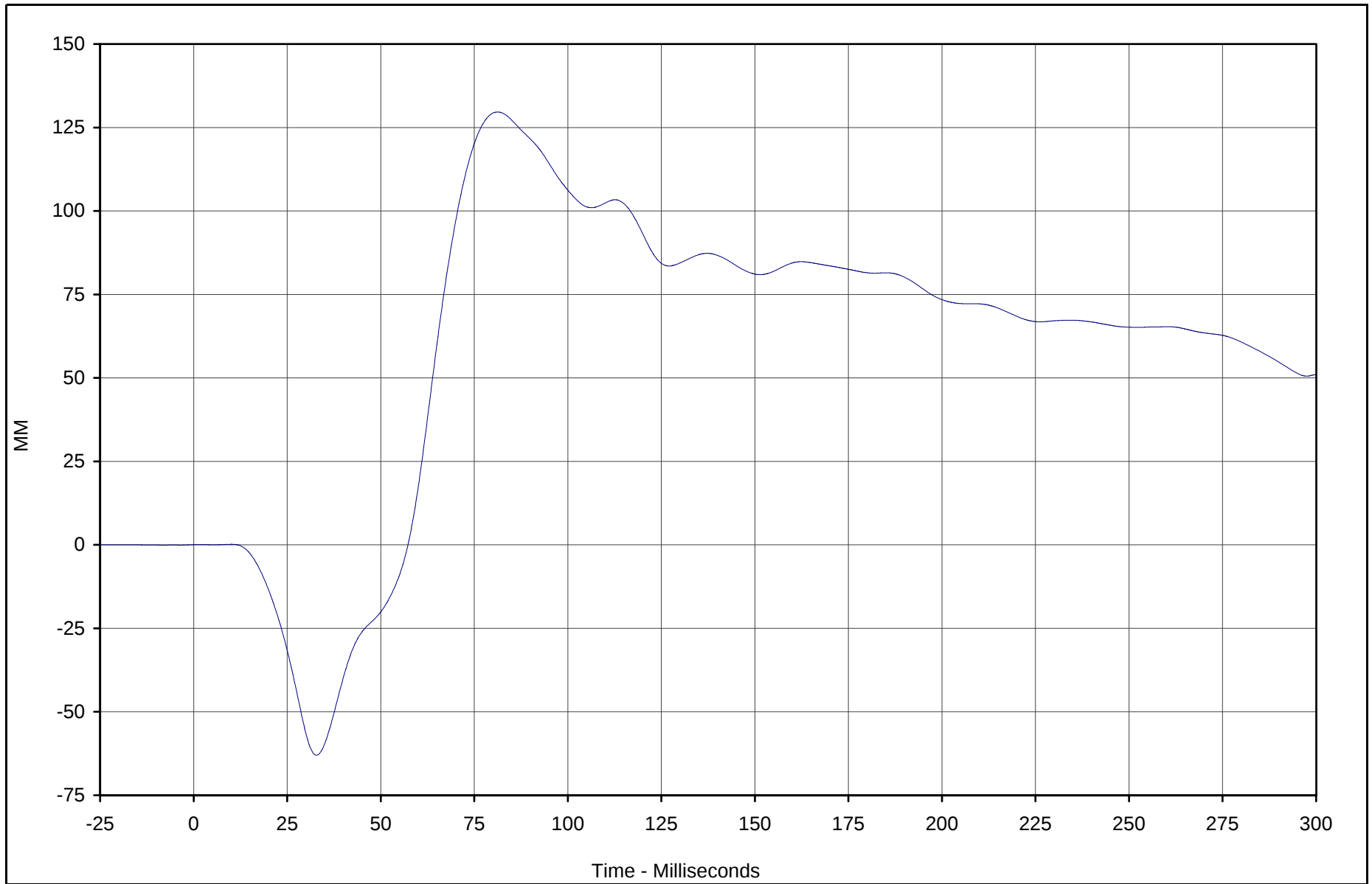
Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

B-60



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Shoulder Belt Pullout	043	FIL	MM	129.6	81.2	-63.0	32.8	60



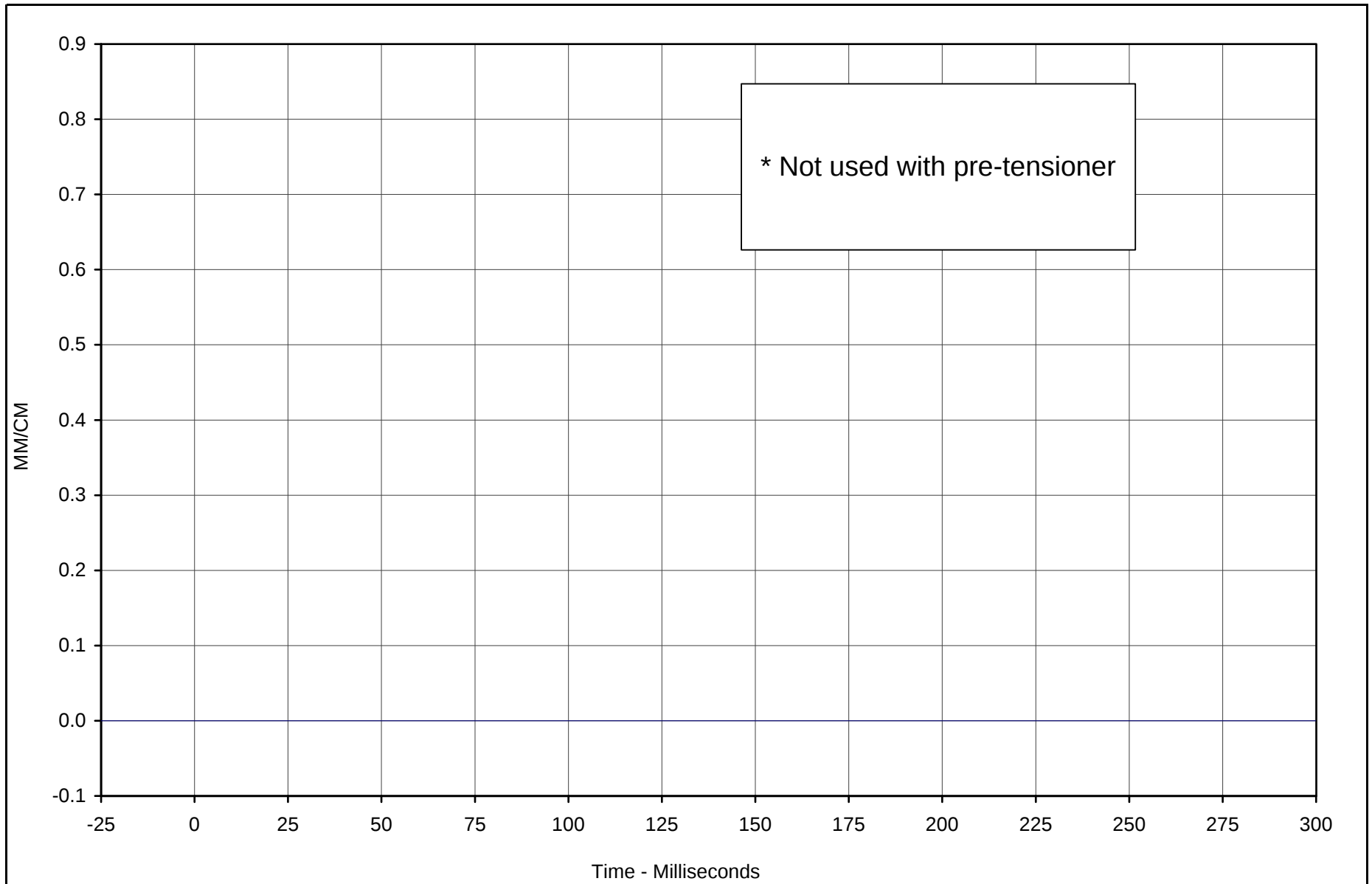
Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

KAR22001-08



* Not used with pre-tensioner

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Shoulder Belt Elongation	044	FIL	MM/CM	0.00	0.0	0.00	0.0	60

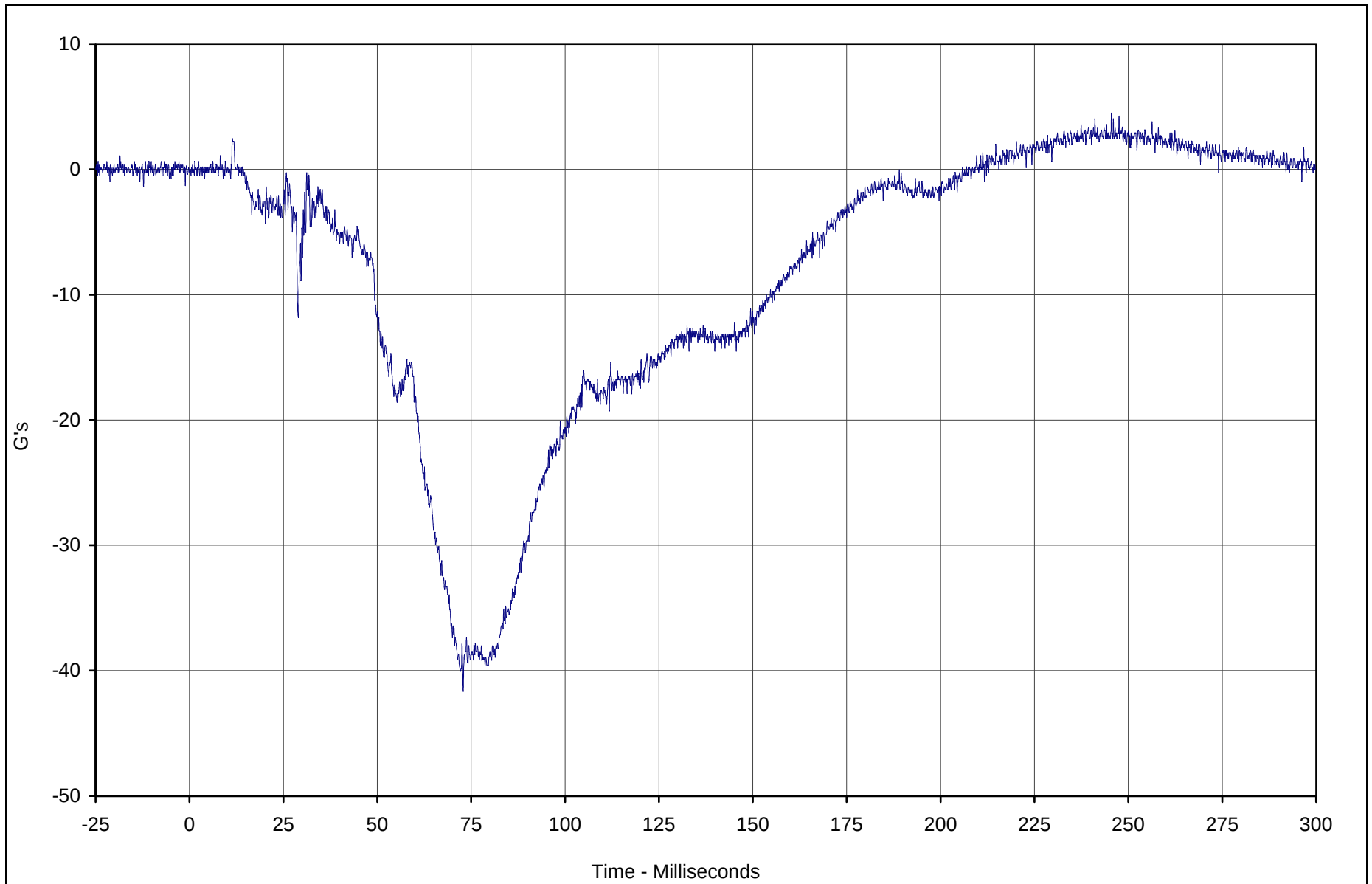


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Head Primary X	045	FIL	G's	4.5	245.5	-41.6	72.9	1000



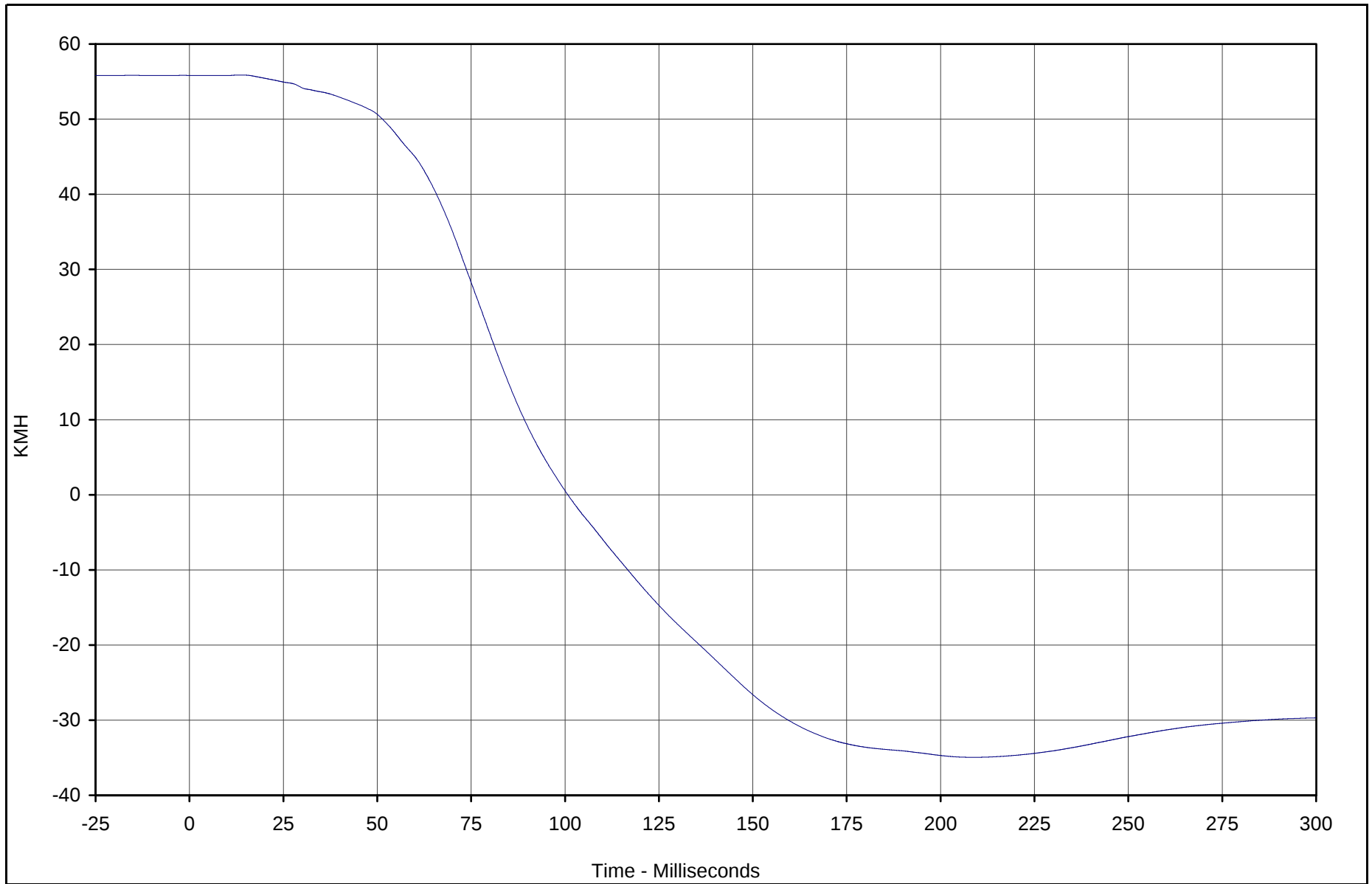
Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

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Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Head Primary X Velocity	045	IN1	KMH	55.9	13.2	-34.9	209.0	180



Test Vehicle: 2002 Mazda MPV LX Minivan

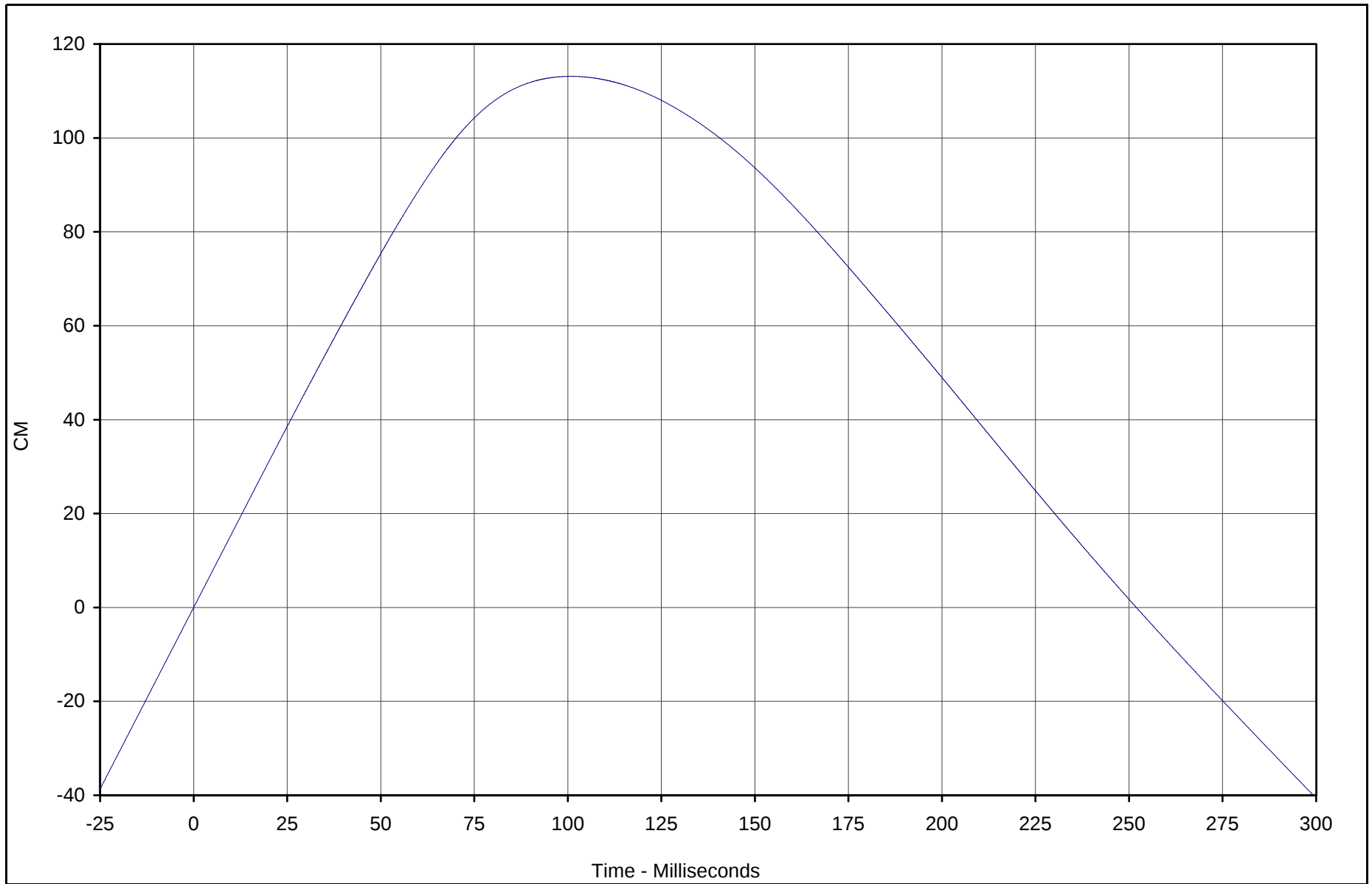
Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

KAR22001-08

B-64



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Head Primary X Displ.	045	IN2	CM	113.1	100.7	-40.5	299.9	180



Test Vehicle: 2002 Mazda MPV LX Minivan

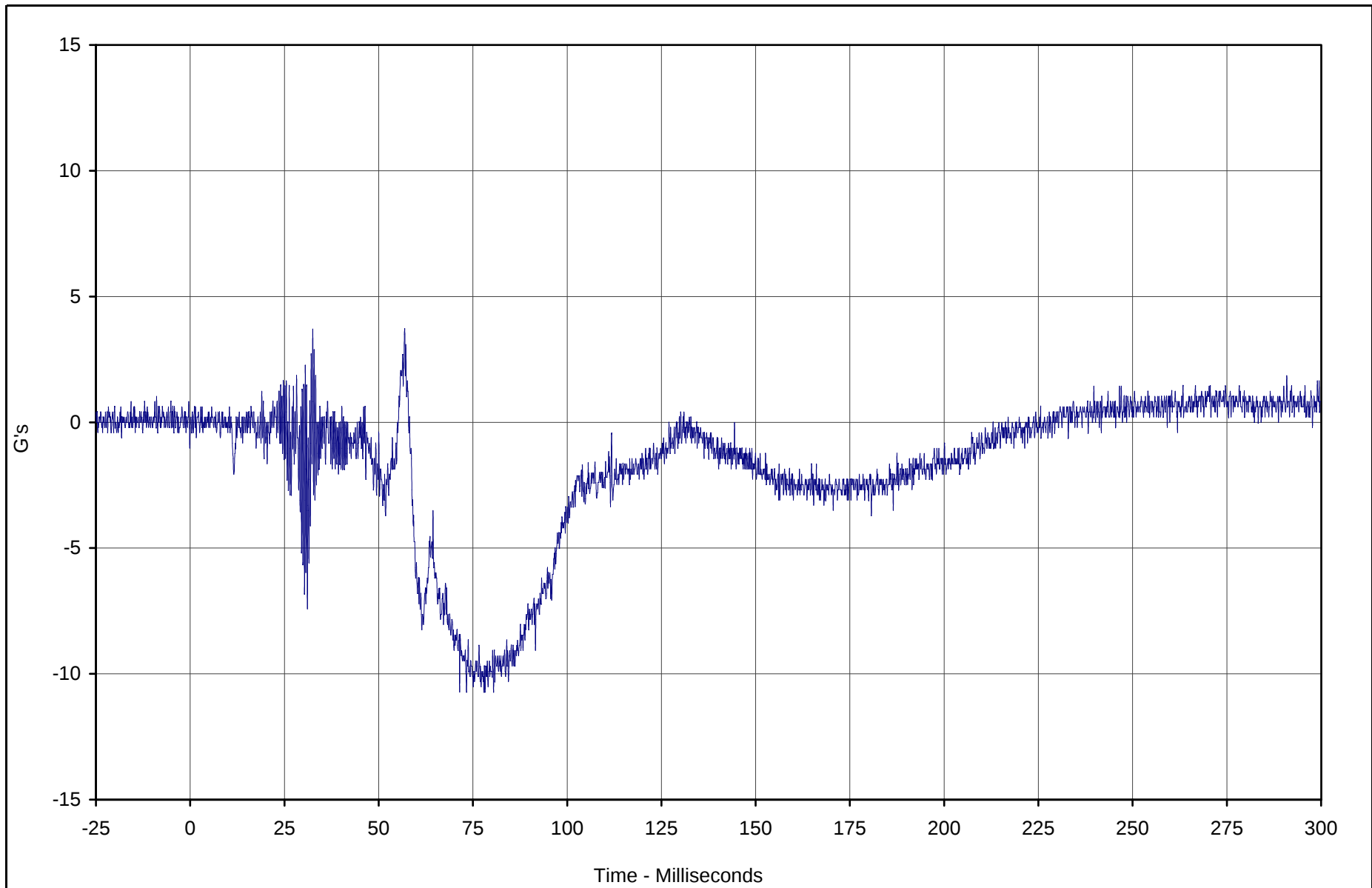
Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

KAR22001-08

B-65



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Head Primary Y	046	FIL	G's	3.7	32.5	-10.7	71.5	1000



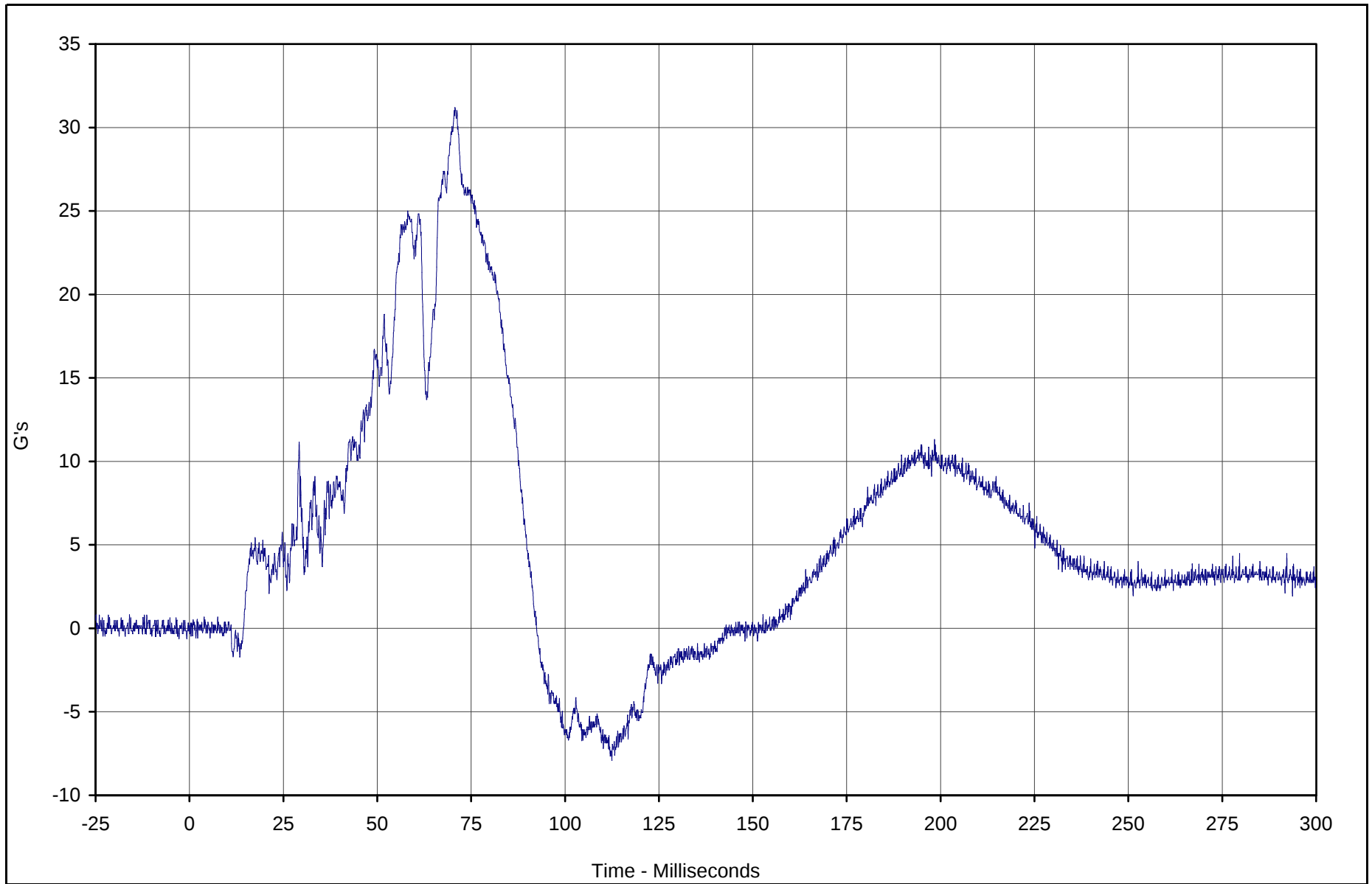
Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

KAR22001-08



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Head Primary Z	047	FIL	G's	31.2	70.7	-7.9	112.5	1000

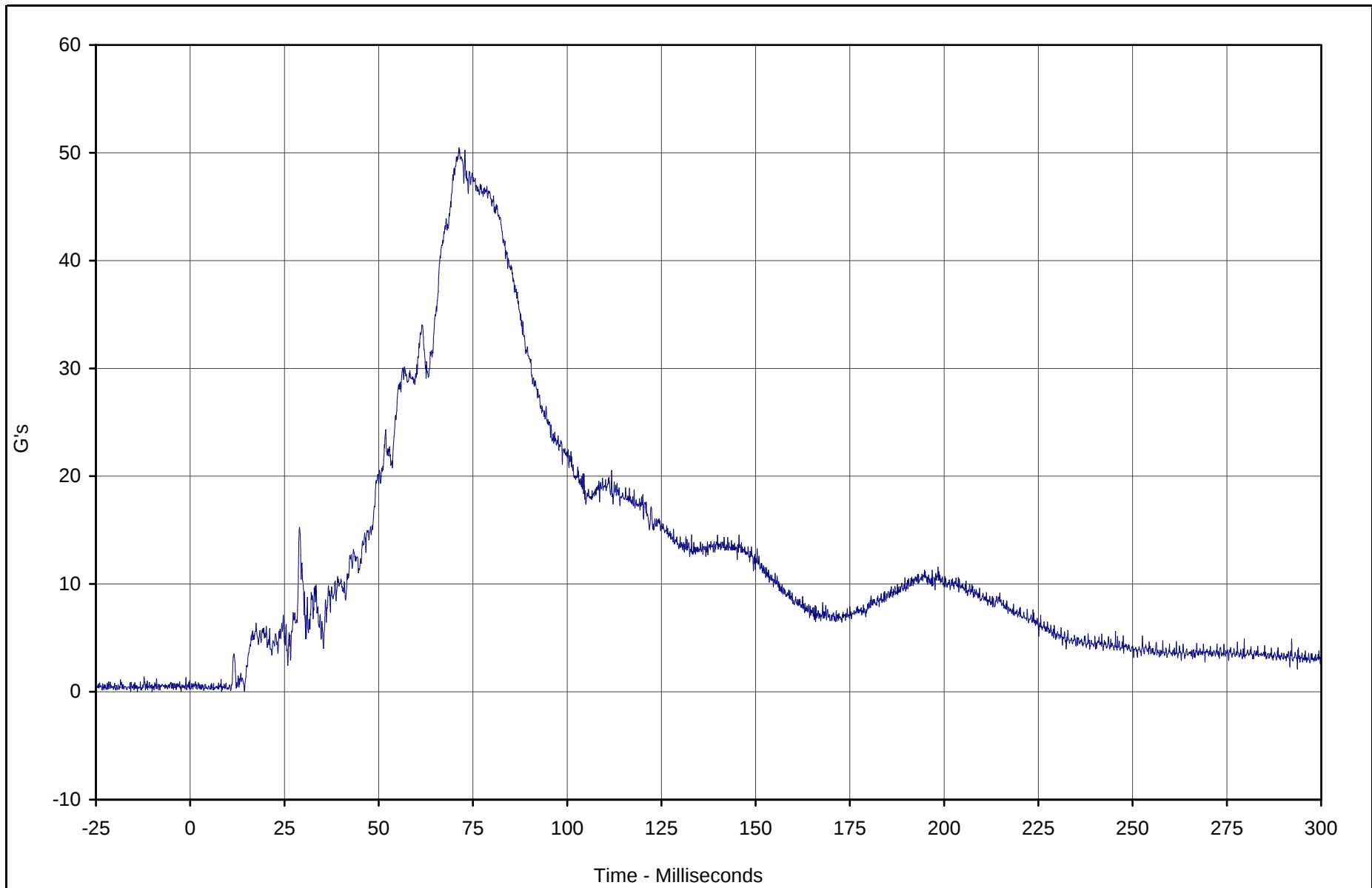


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Head Resultant Primary	045	RES	G's	50.5	71.3	0.0	8.3	1000

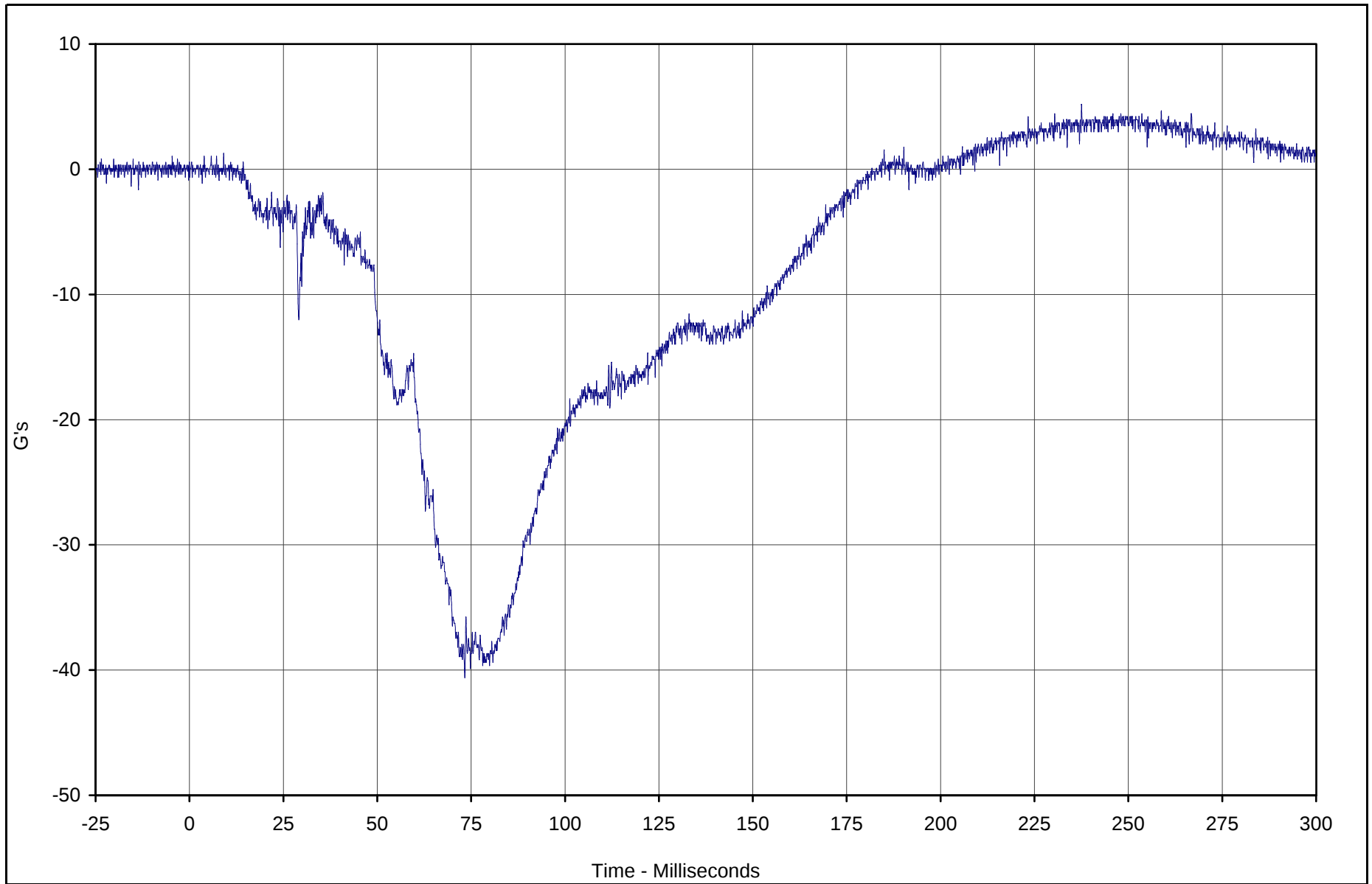


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Head Redundant X	048	FIL	G's	5.2	237.5	-40.6	73.3	1000

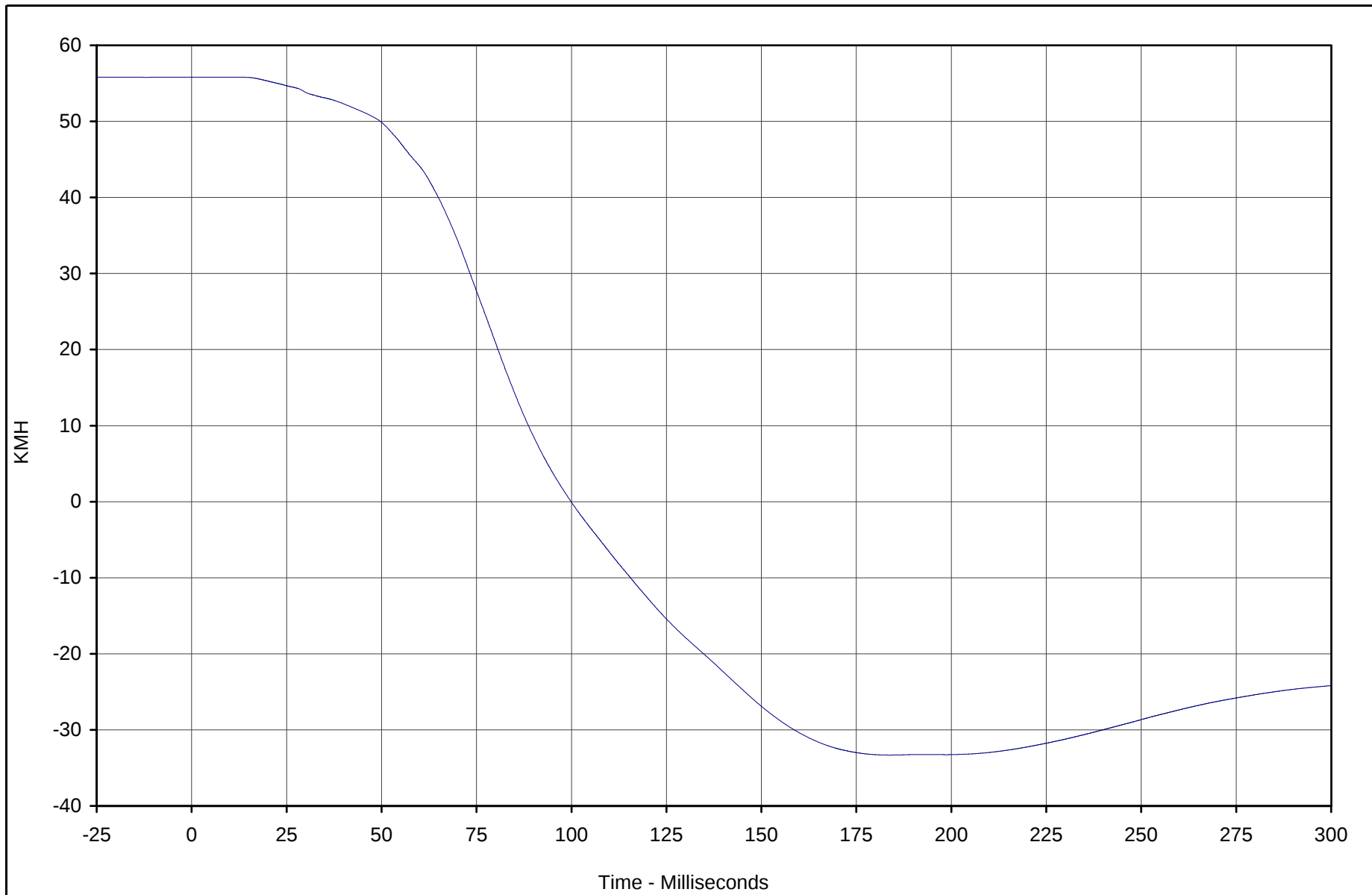


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Head Redundant X Velocity	048	IN1	KMH	55.8	7.1	-33.3	183.8	180



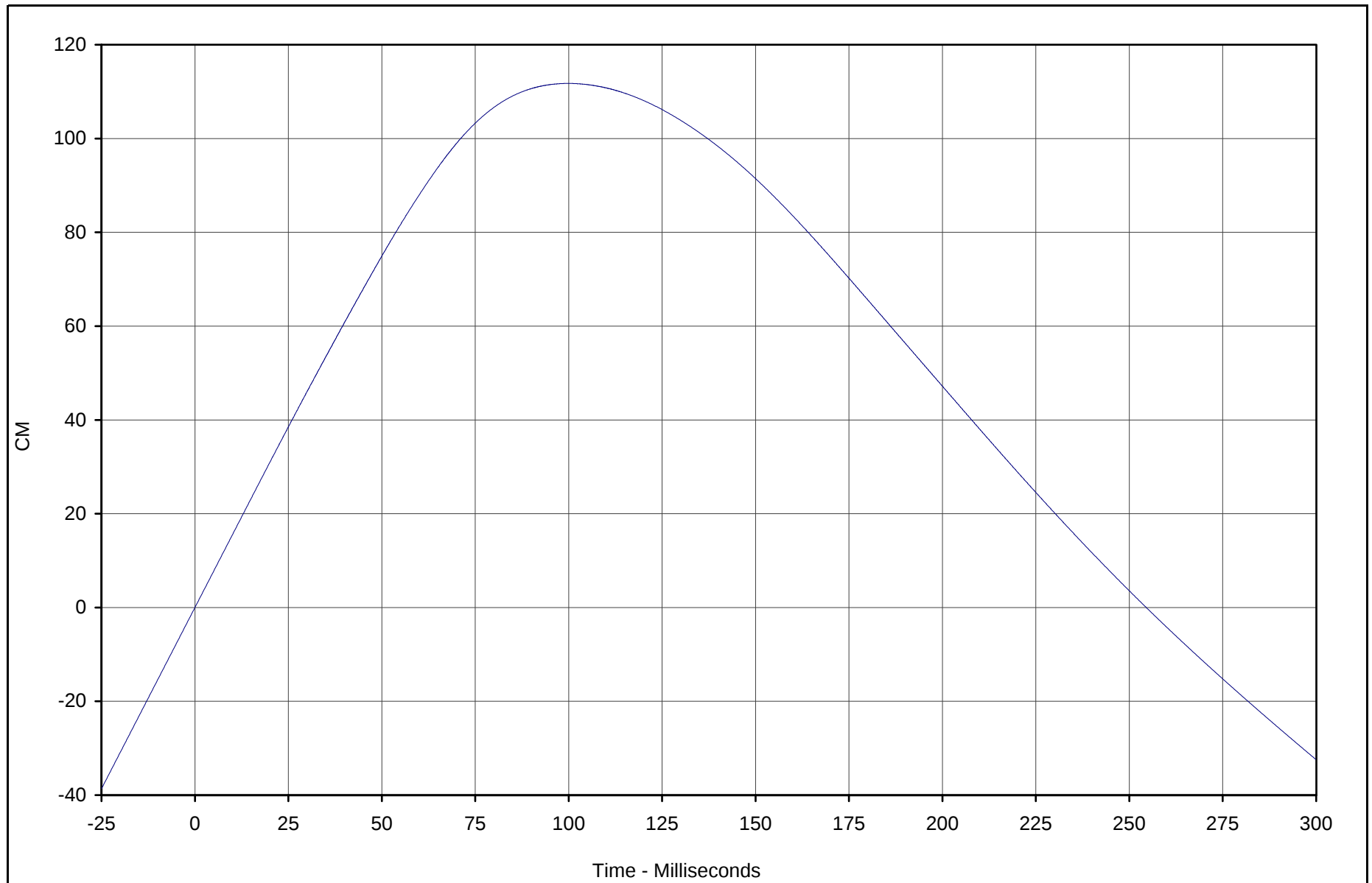
Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

B-70



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Head Redundant X Displ.	048	IN2	CM	111.7	99.9	-32.4	299.9	180



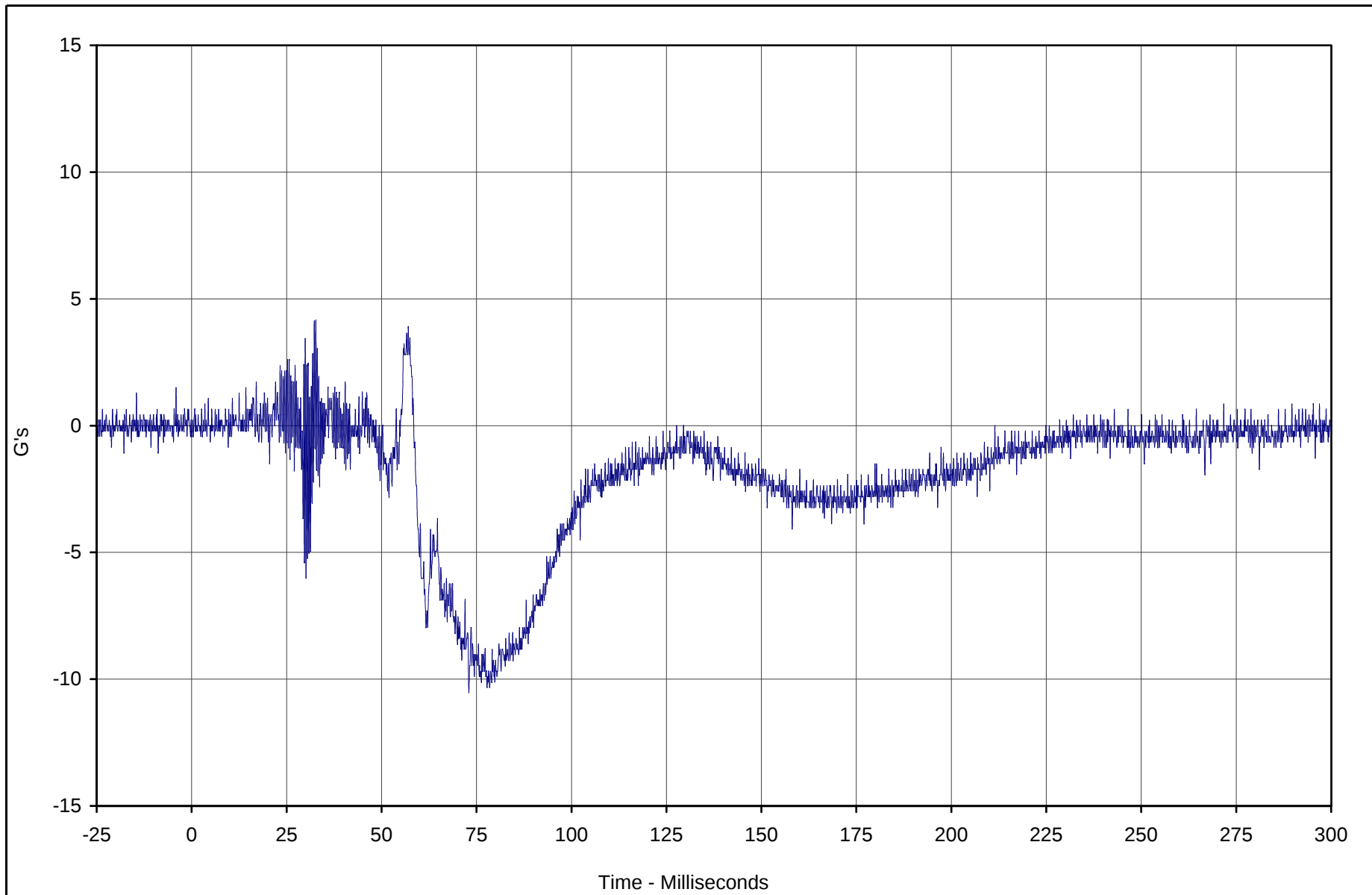
Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

KAR22001-08



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Head Redundant Y	049	FIL	G's	4.1	32.3	-10.5	73.0	1000

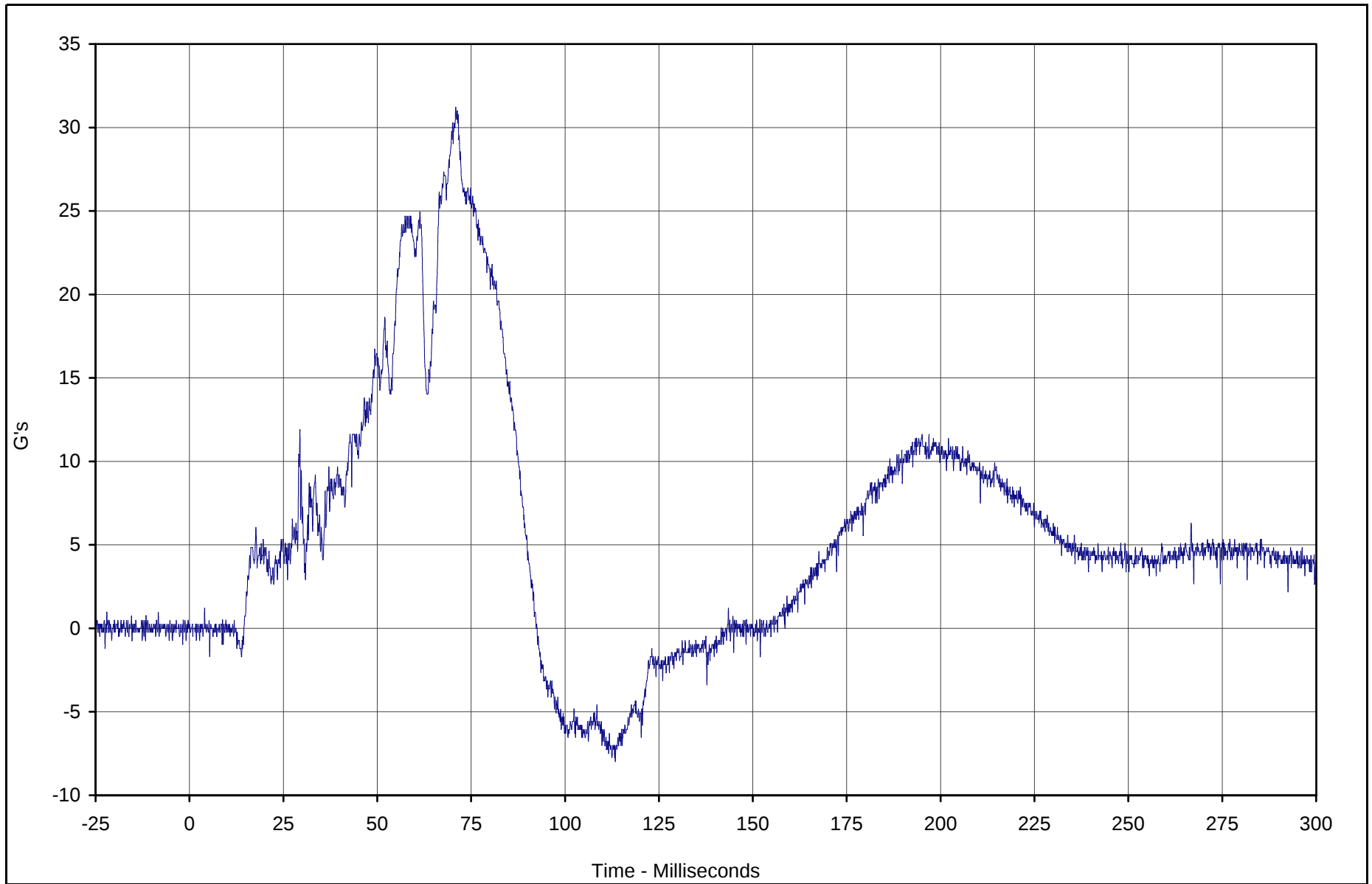


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Head Redundant Z	050	FIL	G's	31.2	70.9	-8.0	113.4	1000

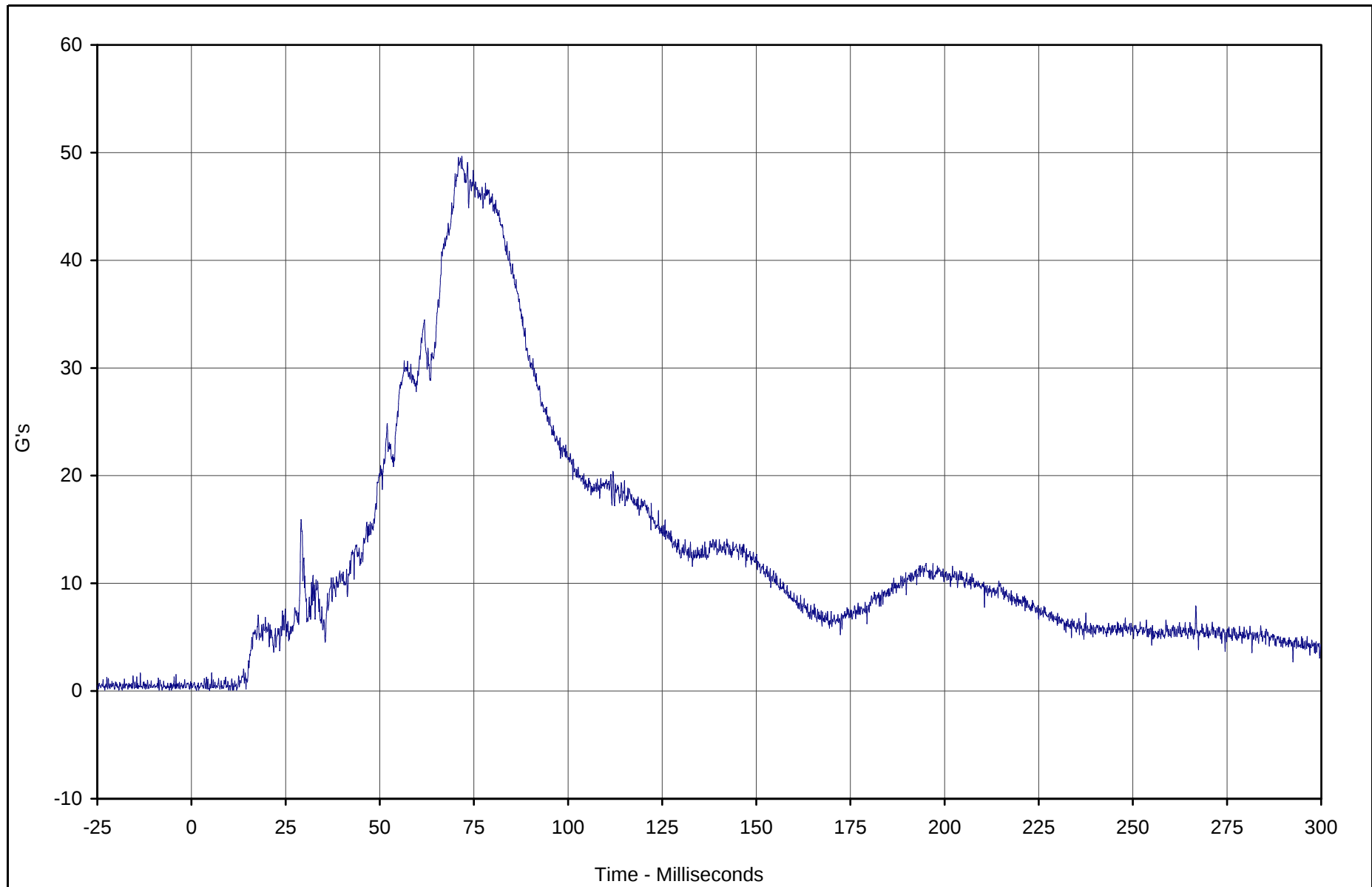


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Head Resultant Redundant	048	RES	G's	49.6	71.8	0.1	1.3	1000

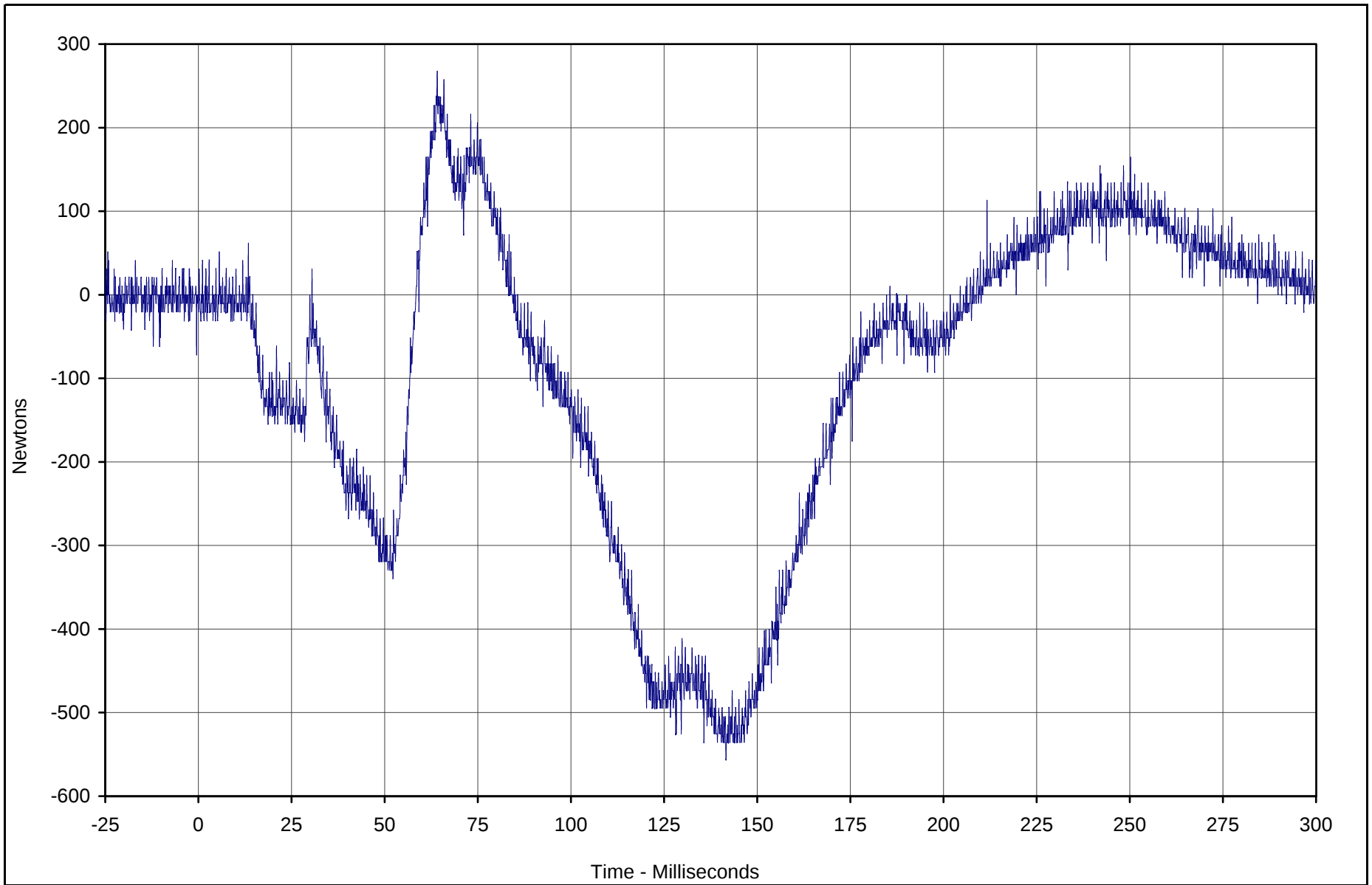


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Neck Force X	051	FIL	Newtons	267.8	64.1	-556.3	141.6	1000

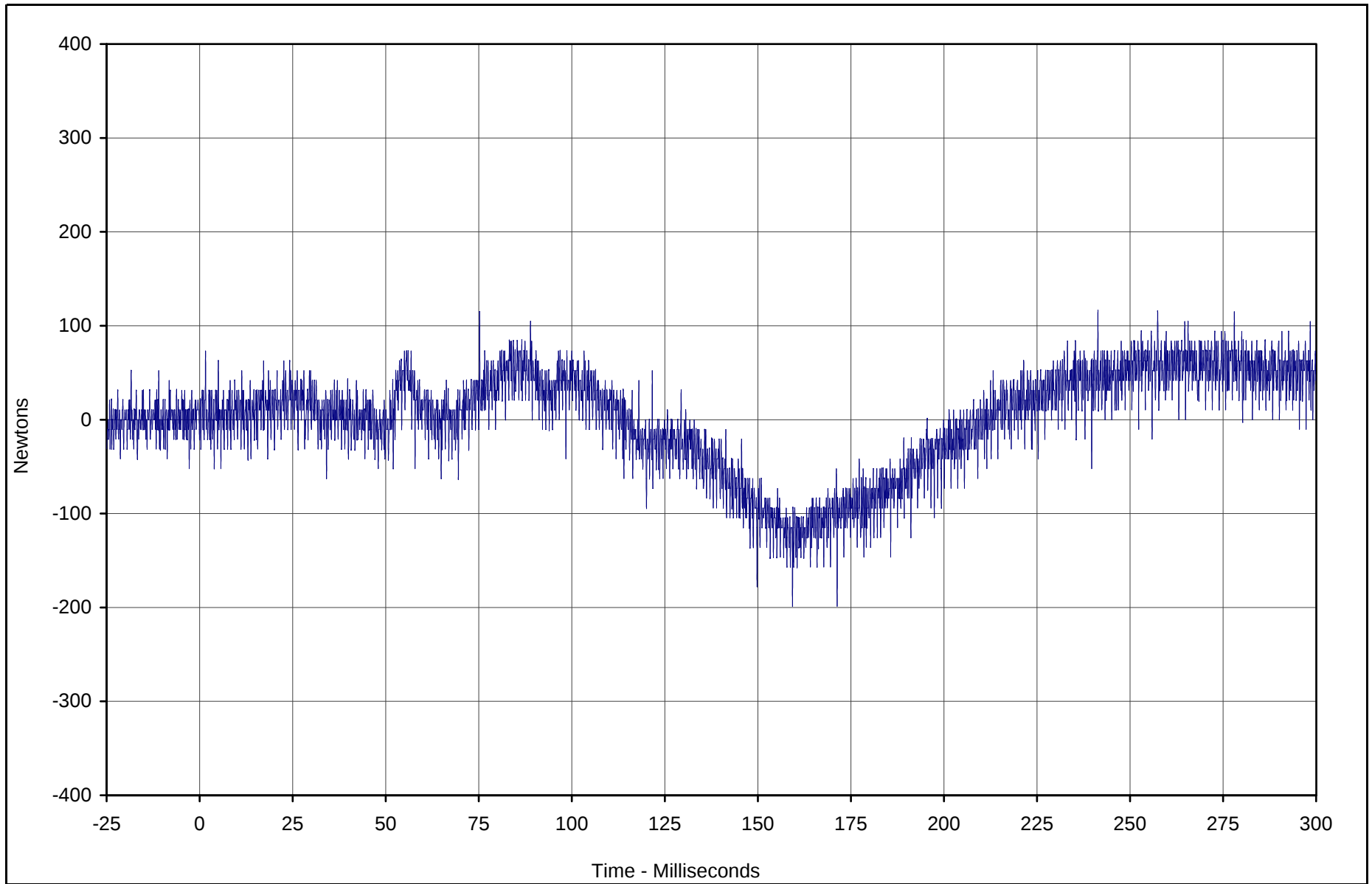


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Neck Force Y	052	FIL	Newtons	115.1	75.2	-198.9	159.3	1000

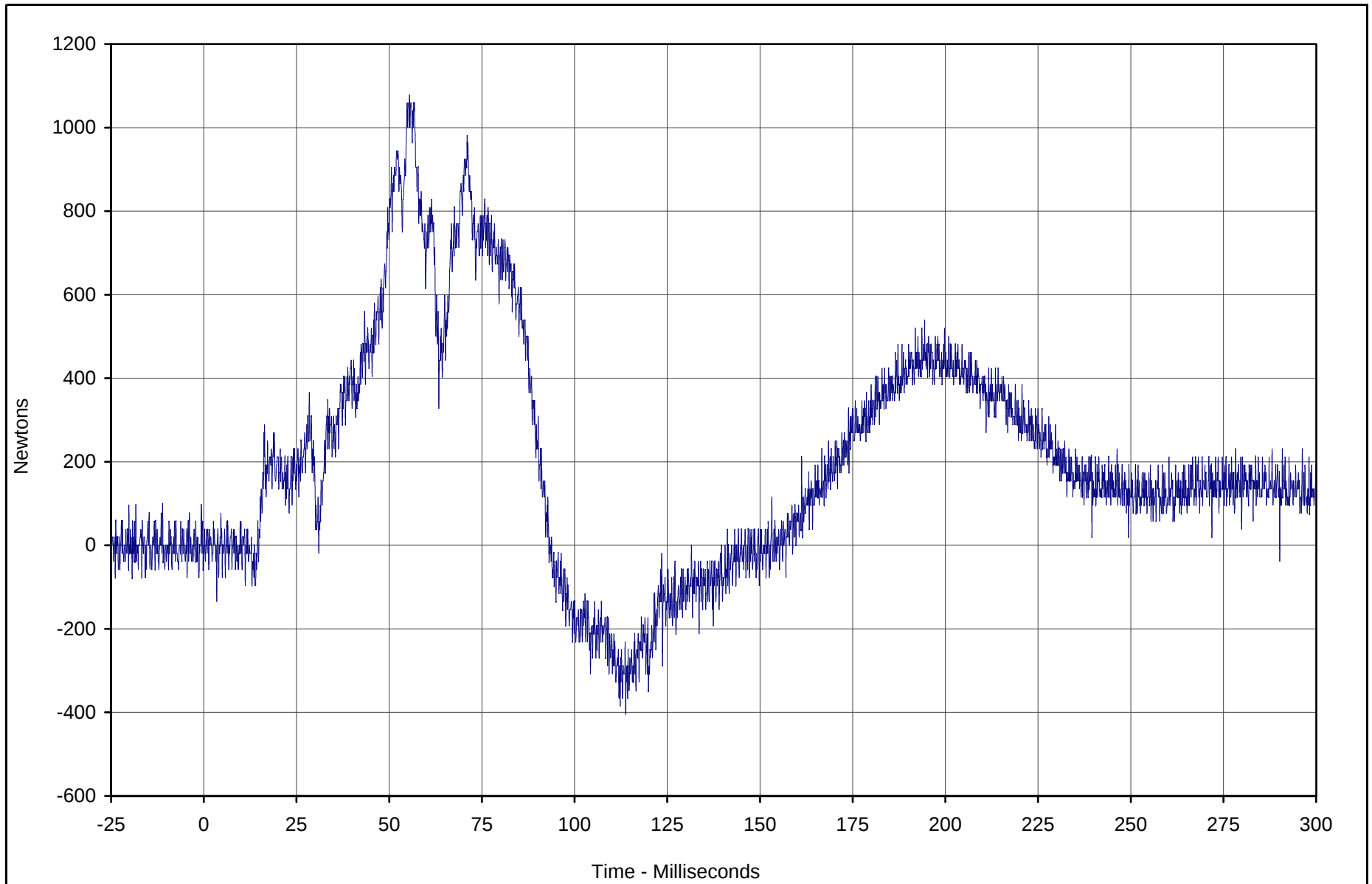


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Neck Force Z	053	FIL	Newtons	1078.4	55.5	-404.4	113.8	1000

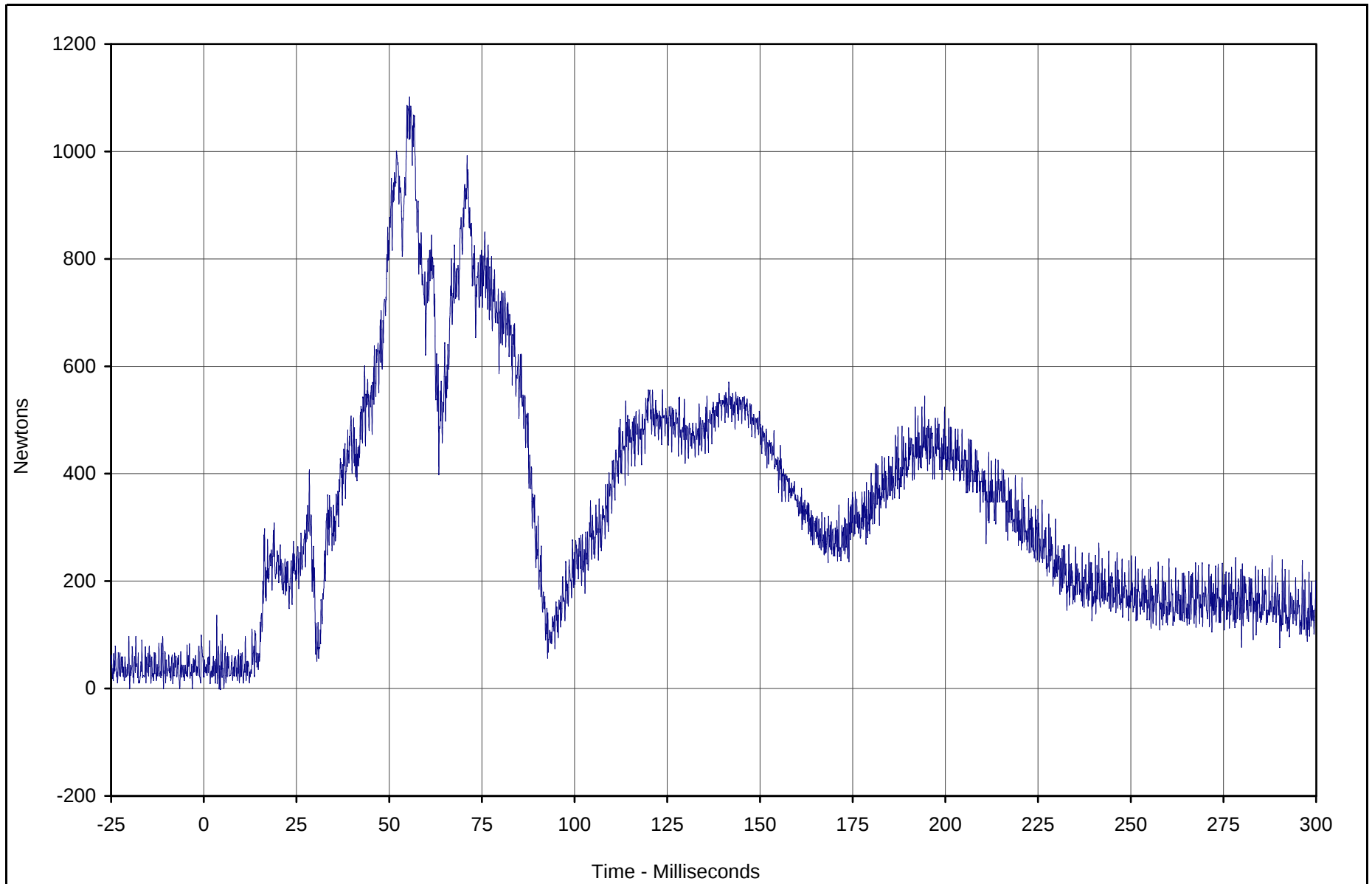


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Neck Force Resultant	051	RES	Newtons	1101.6	55.5	0.0	4.1	1000

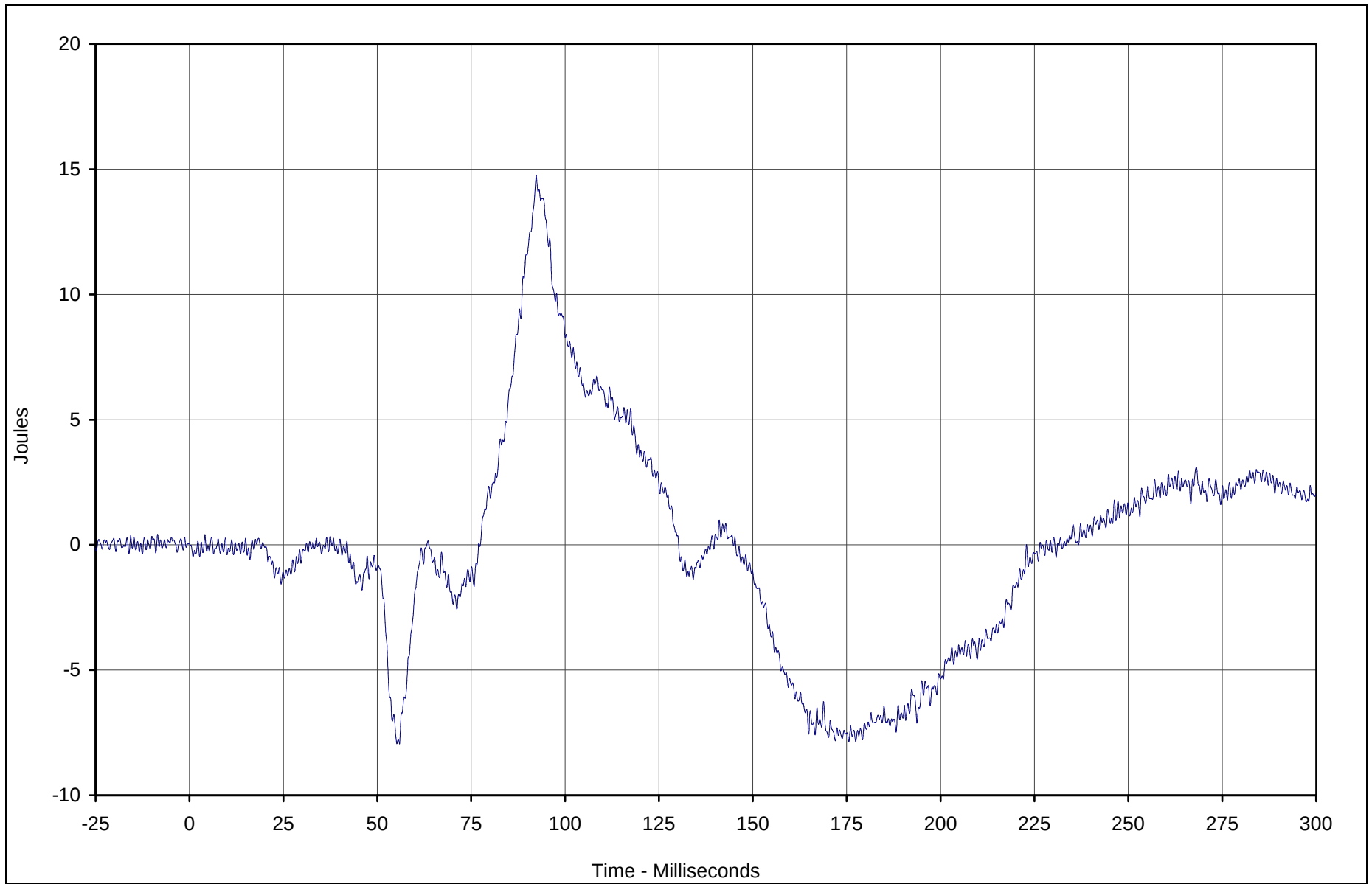


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Neck Moment X	054	FIL	Joules	14.8	92.3	-8.0	55.9	600

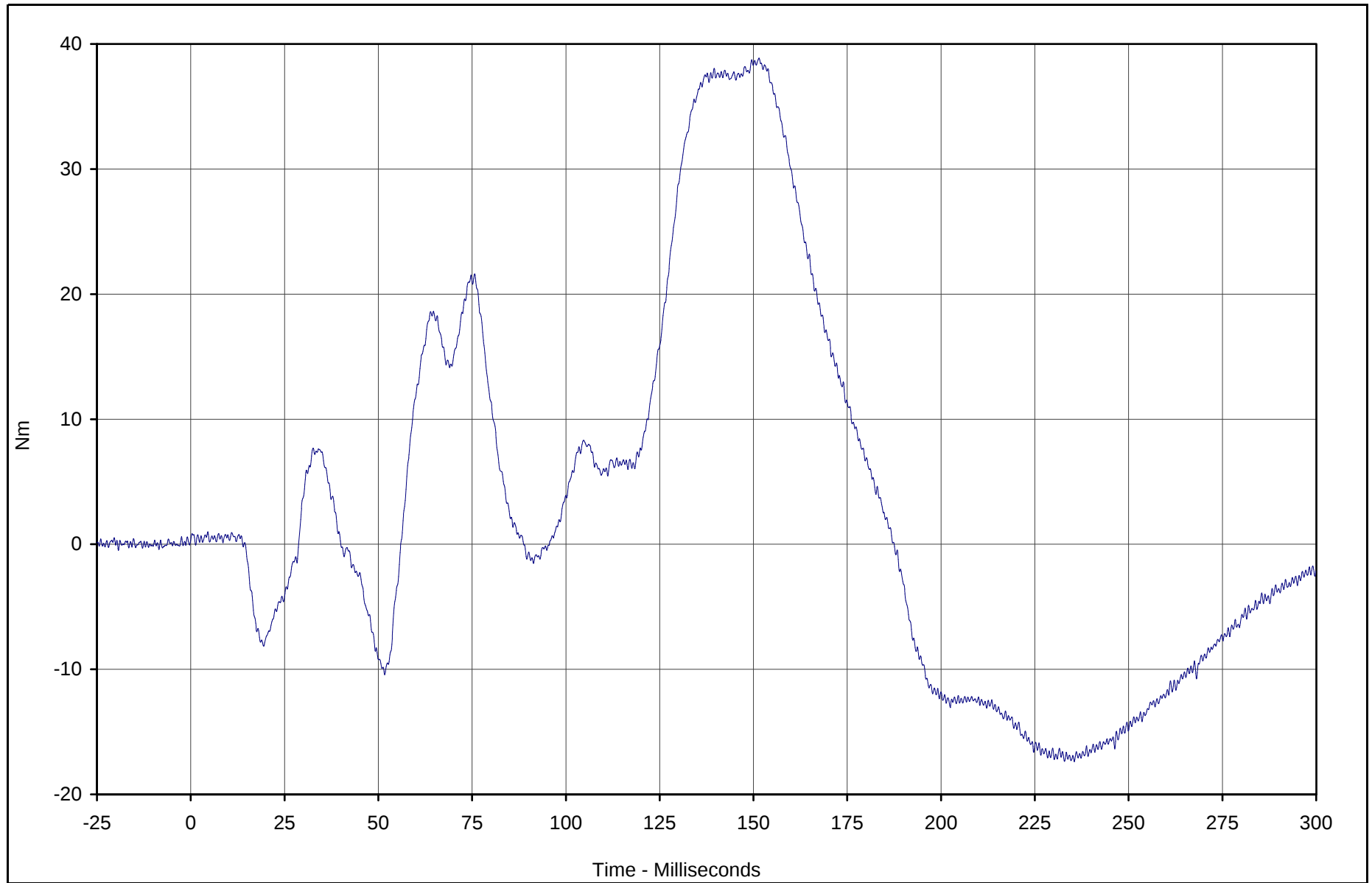


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Neck Moment Y	055	FIL	Nm	38.9	151.5	-17.4	235.5	600

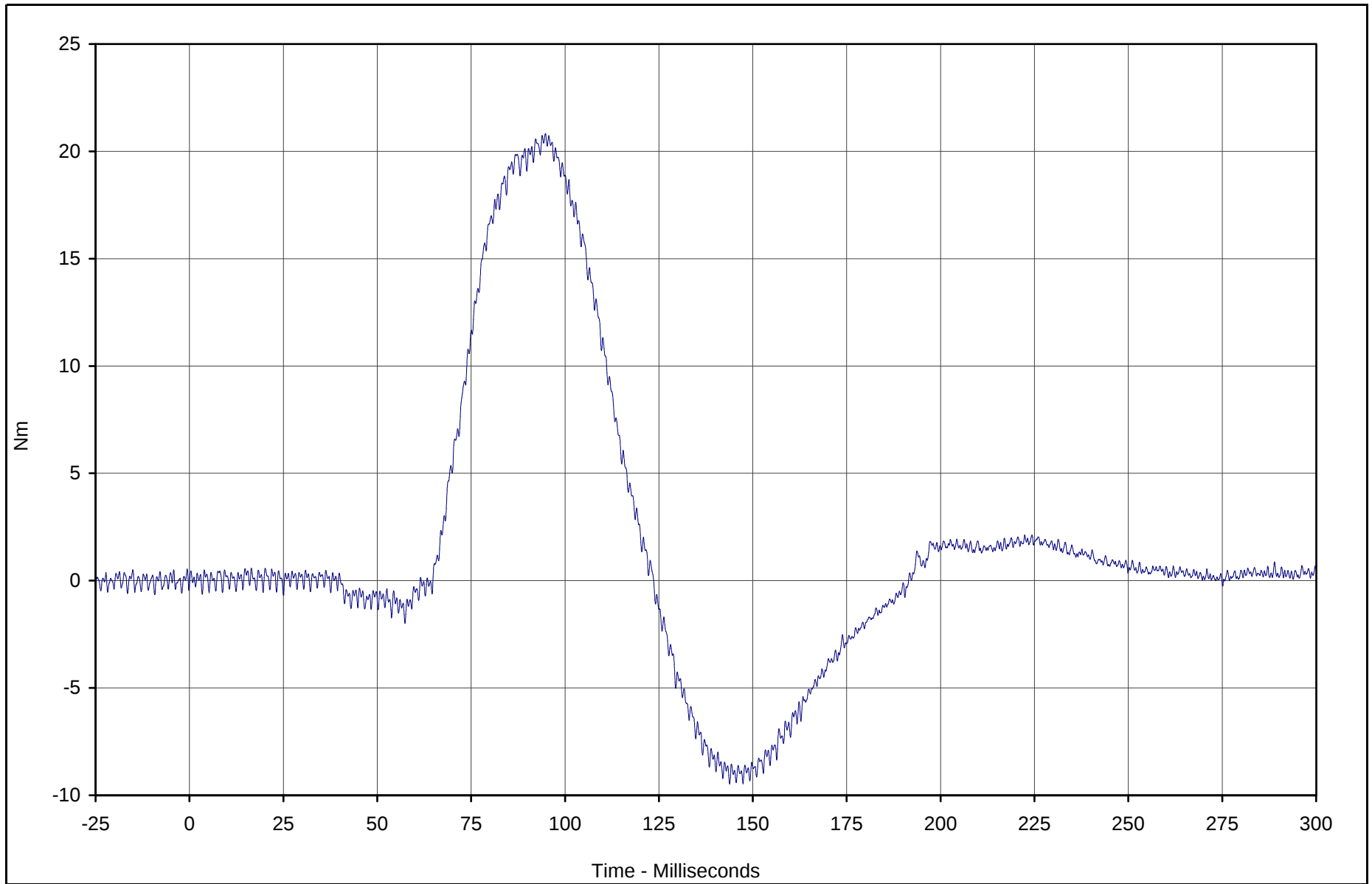


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Neck Moment Z	056	FIL	Nm	20.8	94.8	-9.5	143.8	600

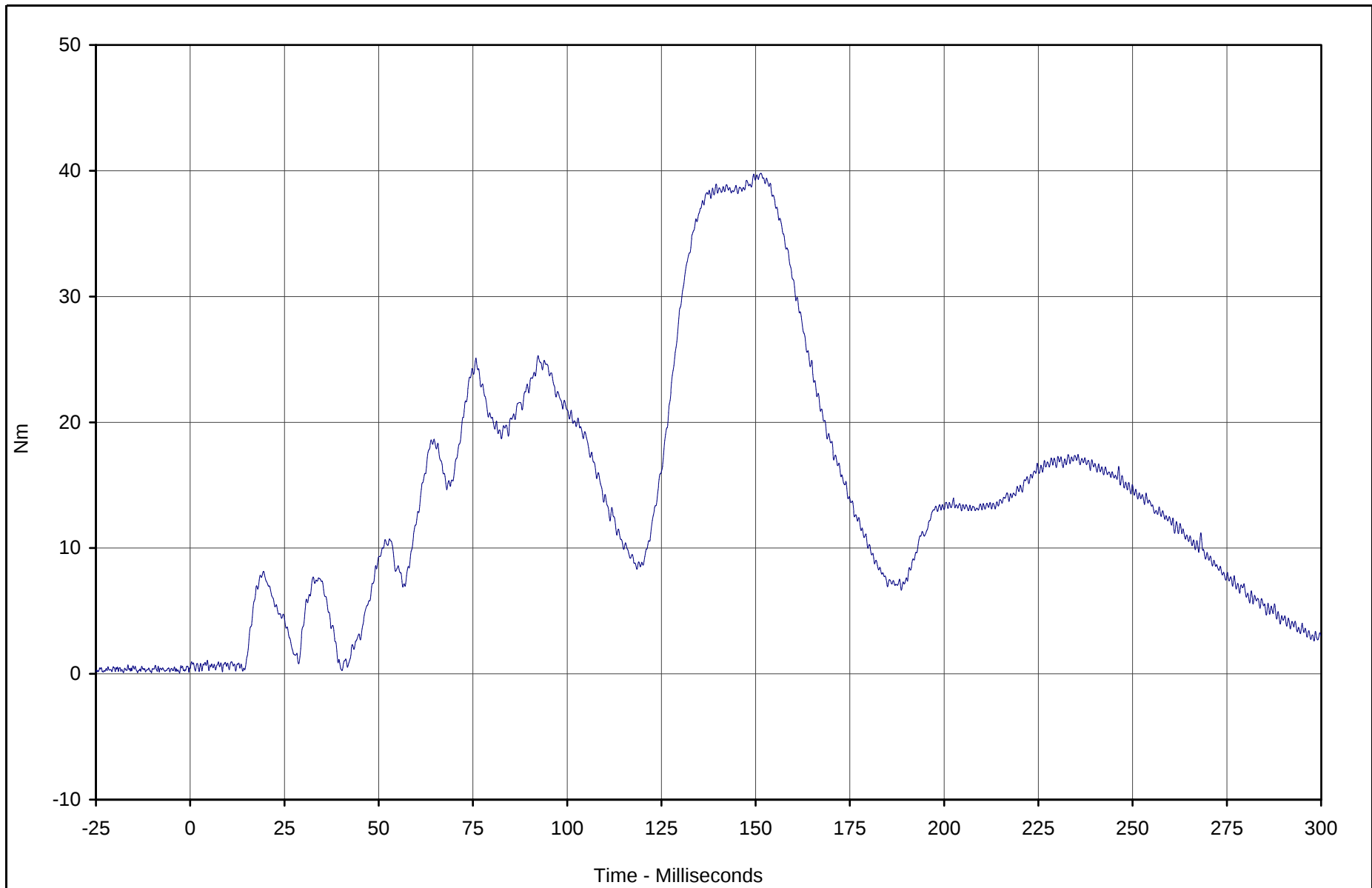


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Neck Moment Resultant	054	RES	Nm	39.8	151.4	0.2	8.5	600

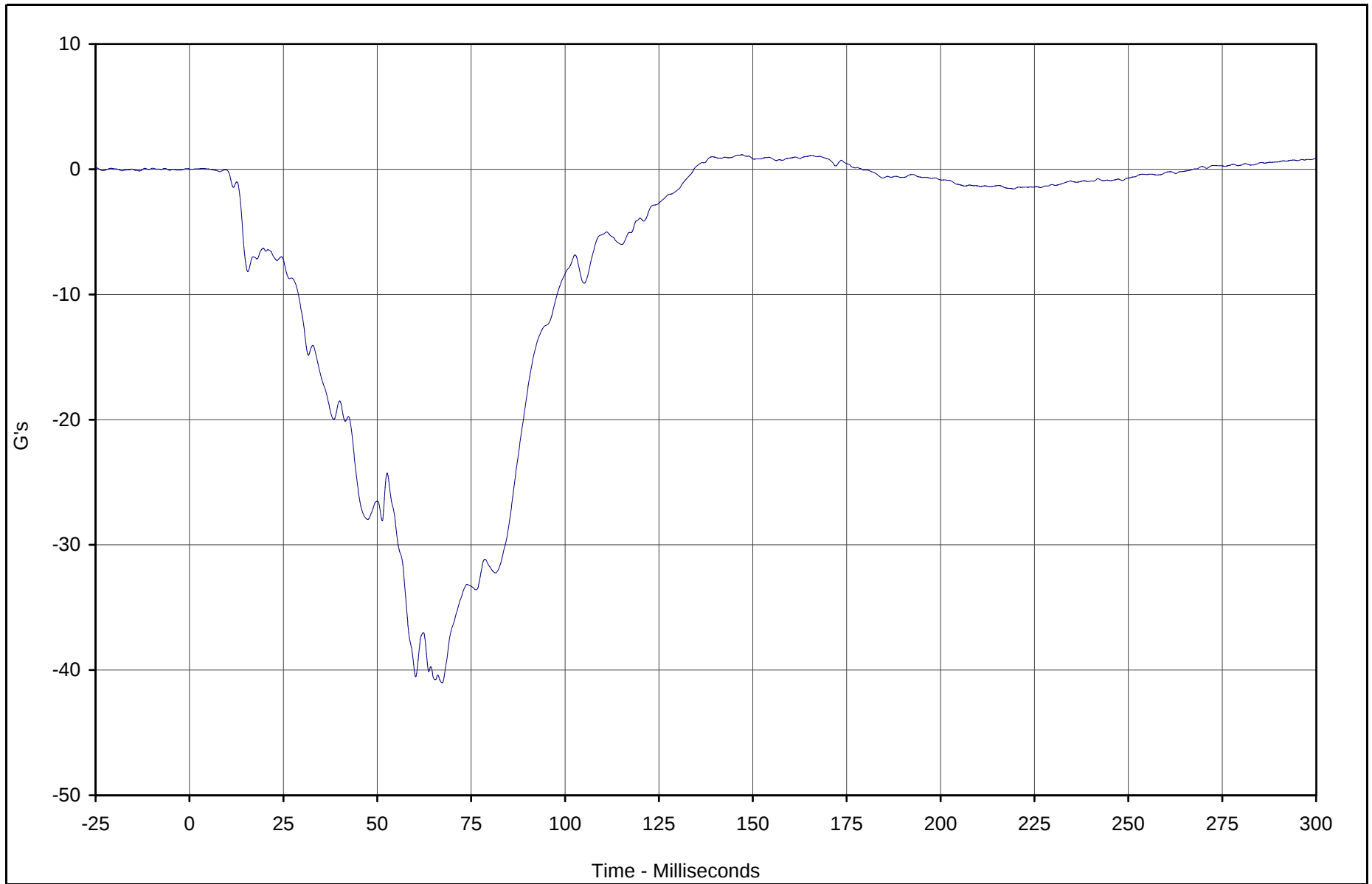


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Chest Primary X	057	FIL	G's	1.2	147.1	-41.0	67.3	180



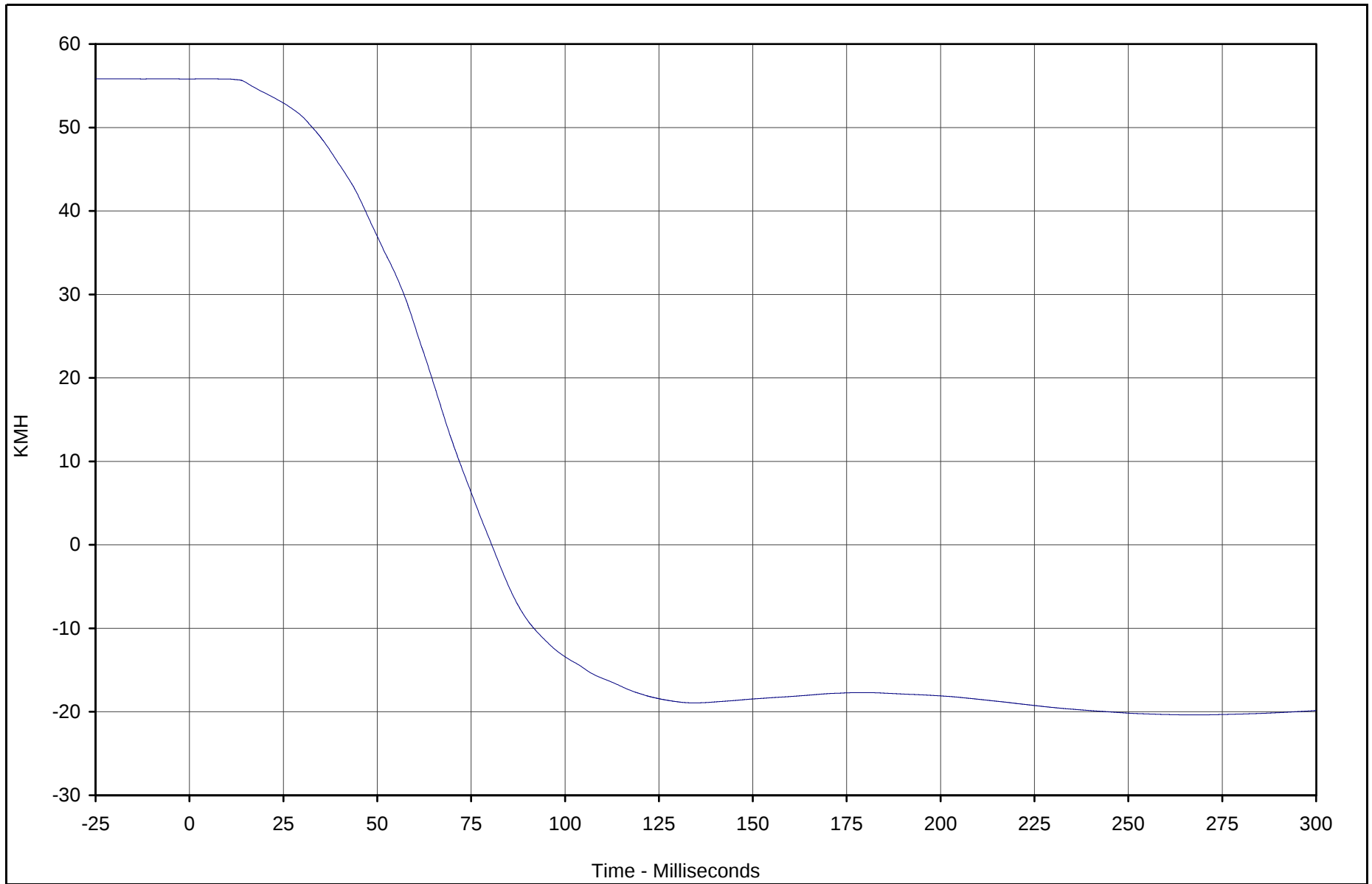
Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

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Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Chest Primary X Velocity	057	IN1	KMH	55.8	5.5	-20.4	267.1	180



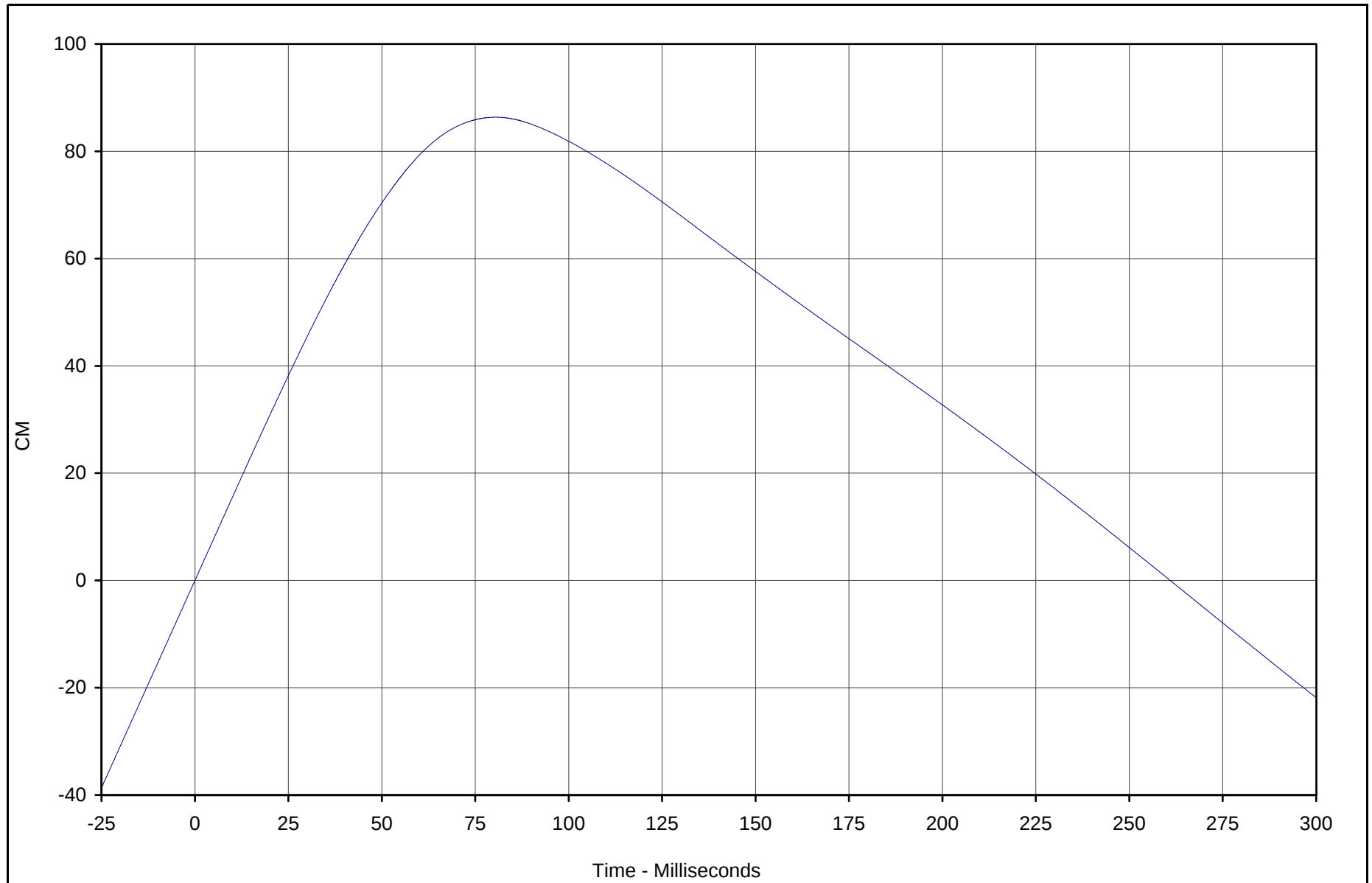
Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

KAR22001-08



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Chest Primary X Displ.	057	IN2	CM	86.4	80.5	-21.8	299.9	180



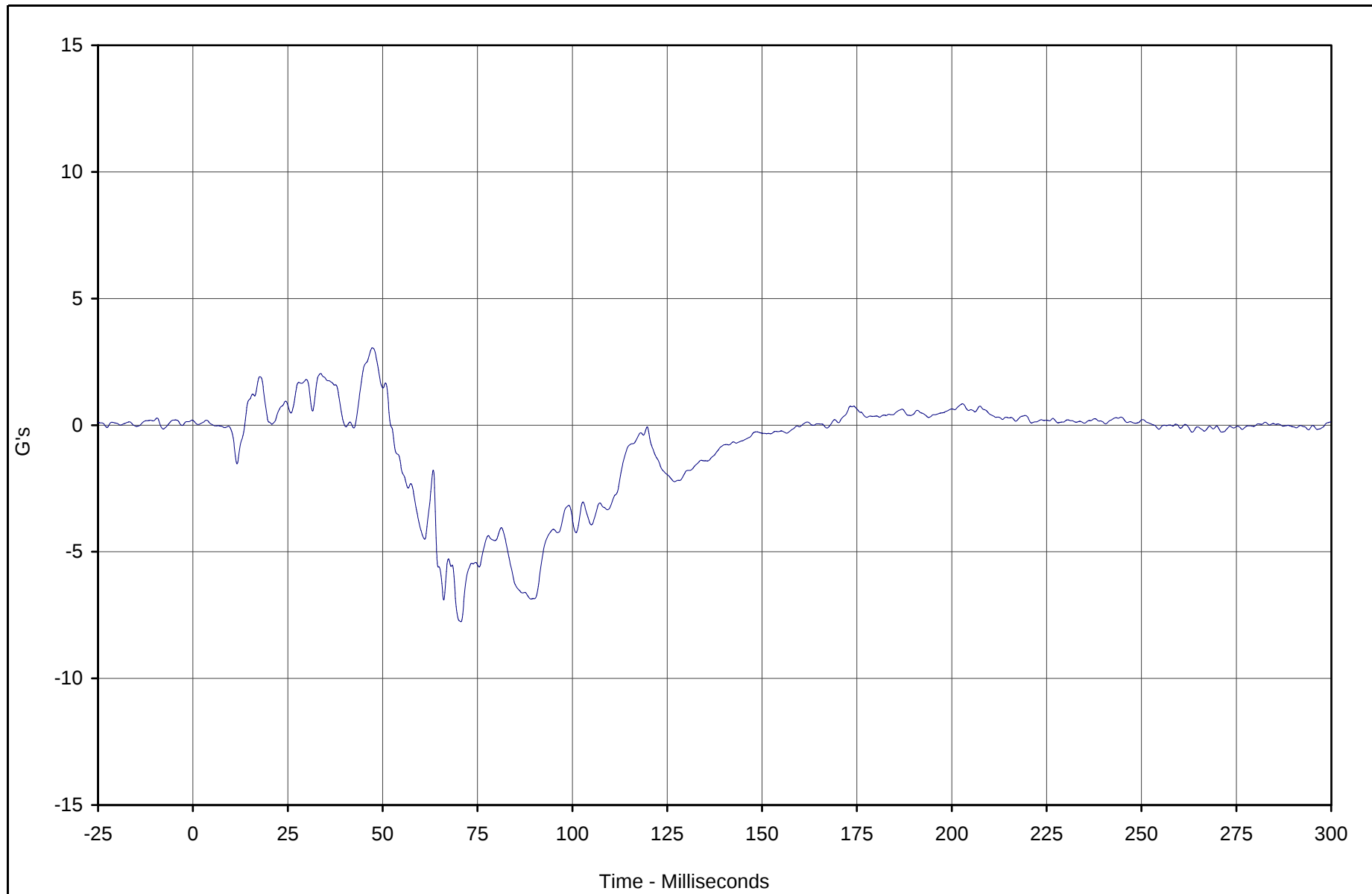
Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

B-85



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Chest Primary Y	058	FIL	G's	3.1	47.3	-7.8	70.6	180



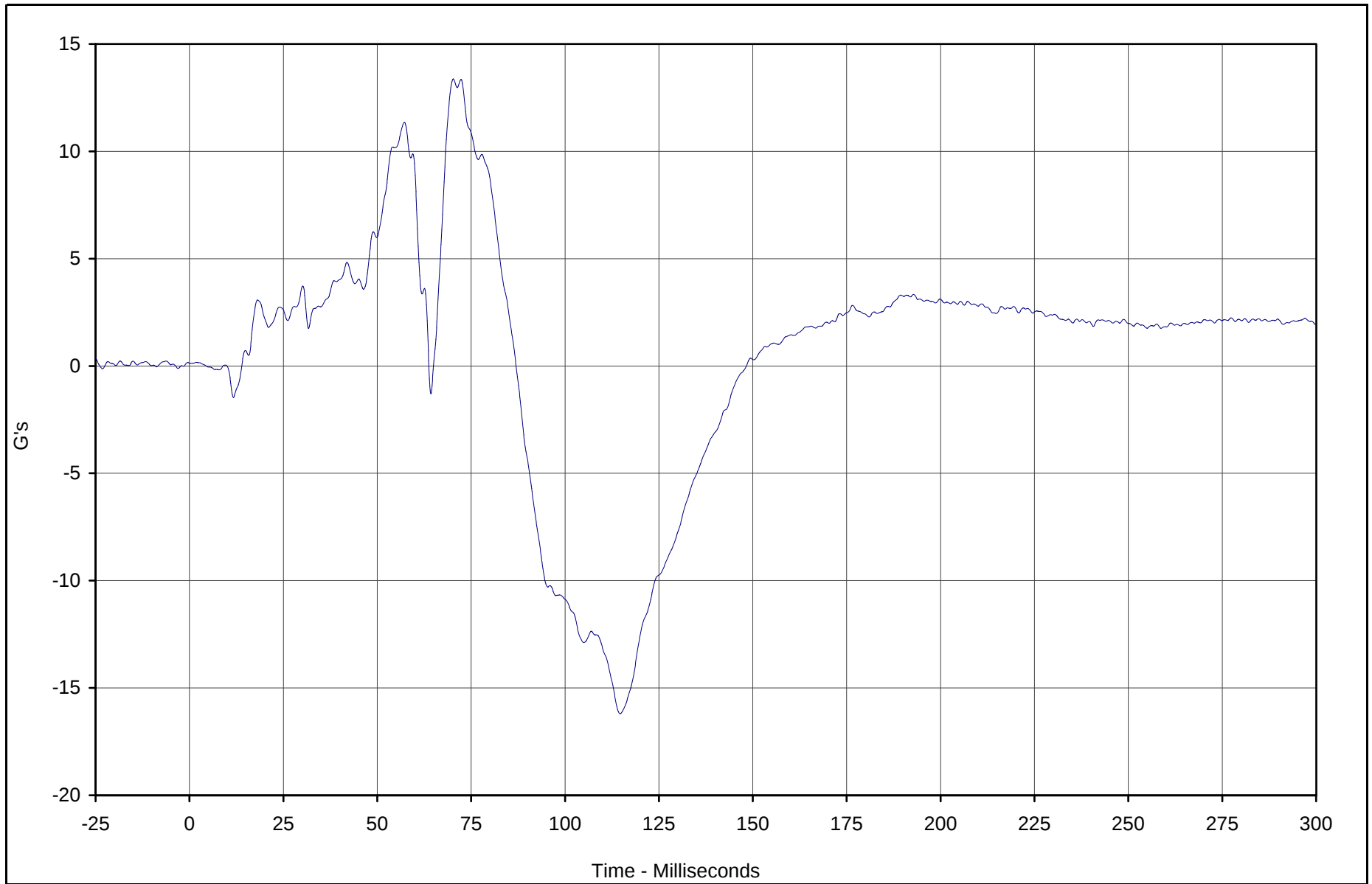
Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

KAR22001-08



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Chest Primary Z	059	FIL	G's	13.4	70.2	-16.2	114.7	180



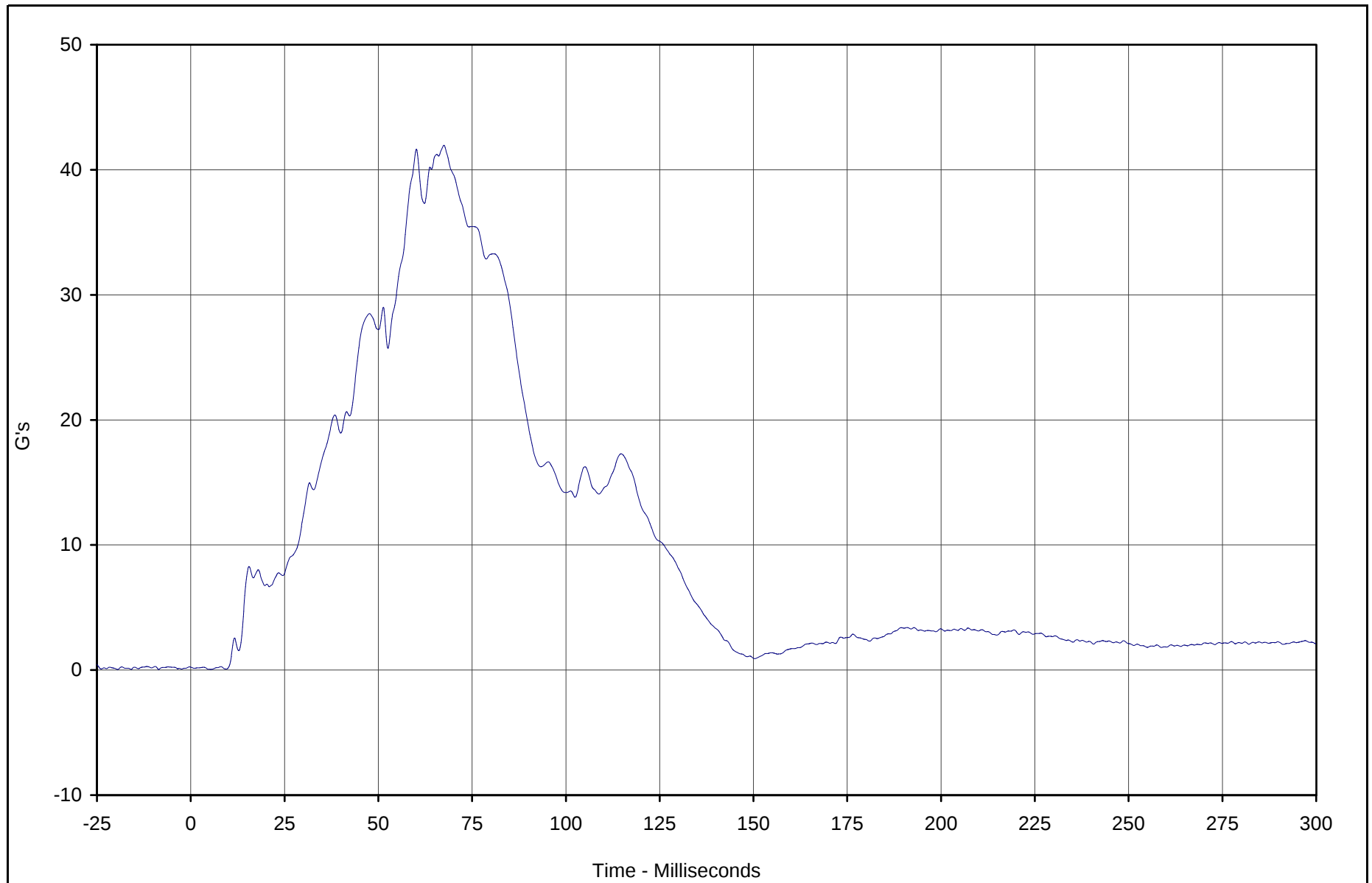
Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

B-87



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Chest Resultant Primary	057	RES	G's	42.0	67.5	0.1	5.4	180



Test Vehicle: 2002 Mazda MPV LX Minivan

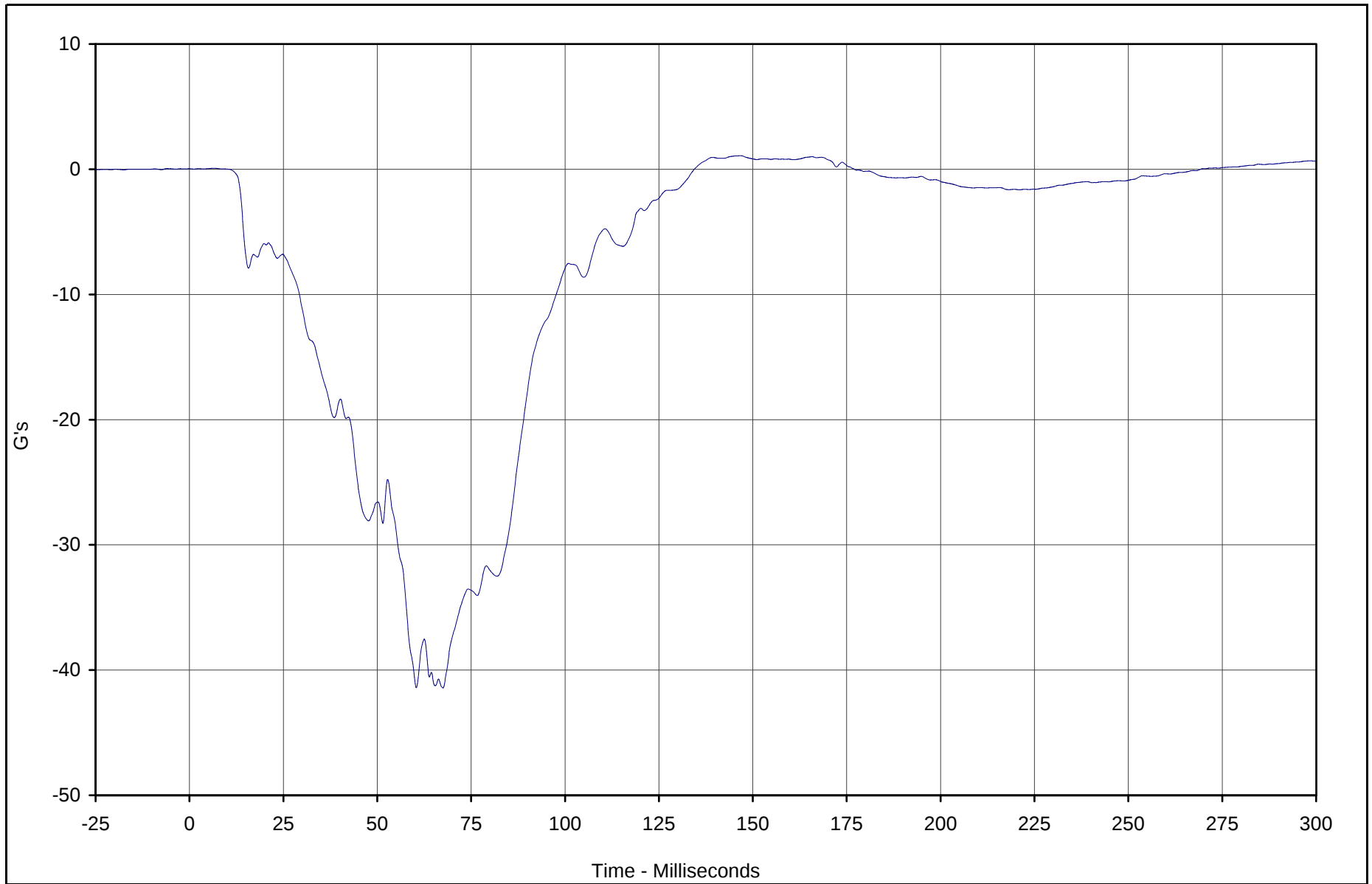
Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

KAR22001-08

B-88



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Chest Redundant X	060	FIL	G's	1.1	146.8	-41.4	67.5	180



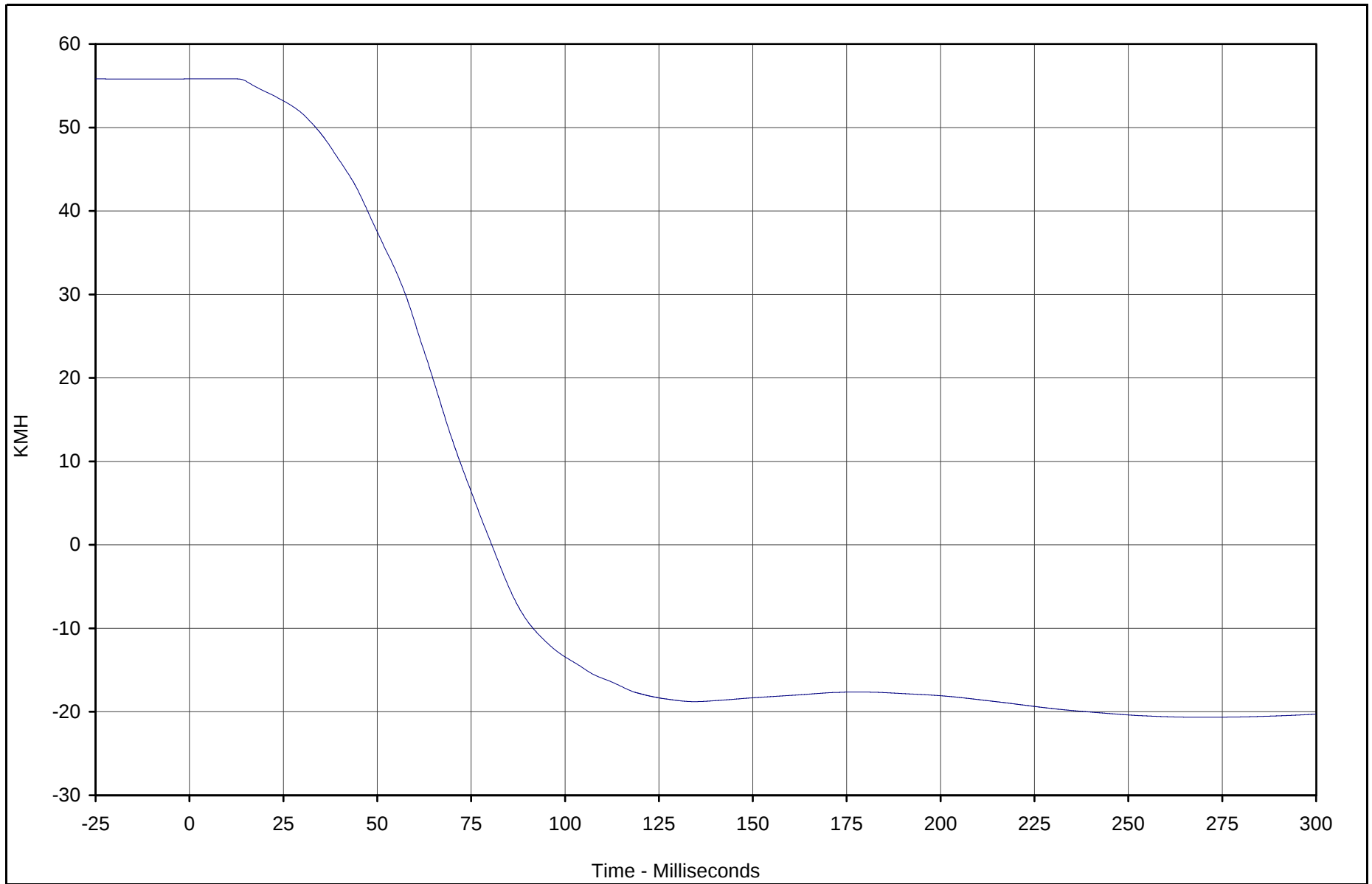
Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

KAR22001-08



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Chest Redundant X Velocity	060	IN1	KMH	55.8	10.4	-20.7	269.2	180

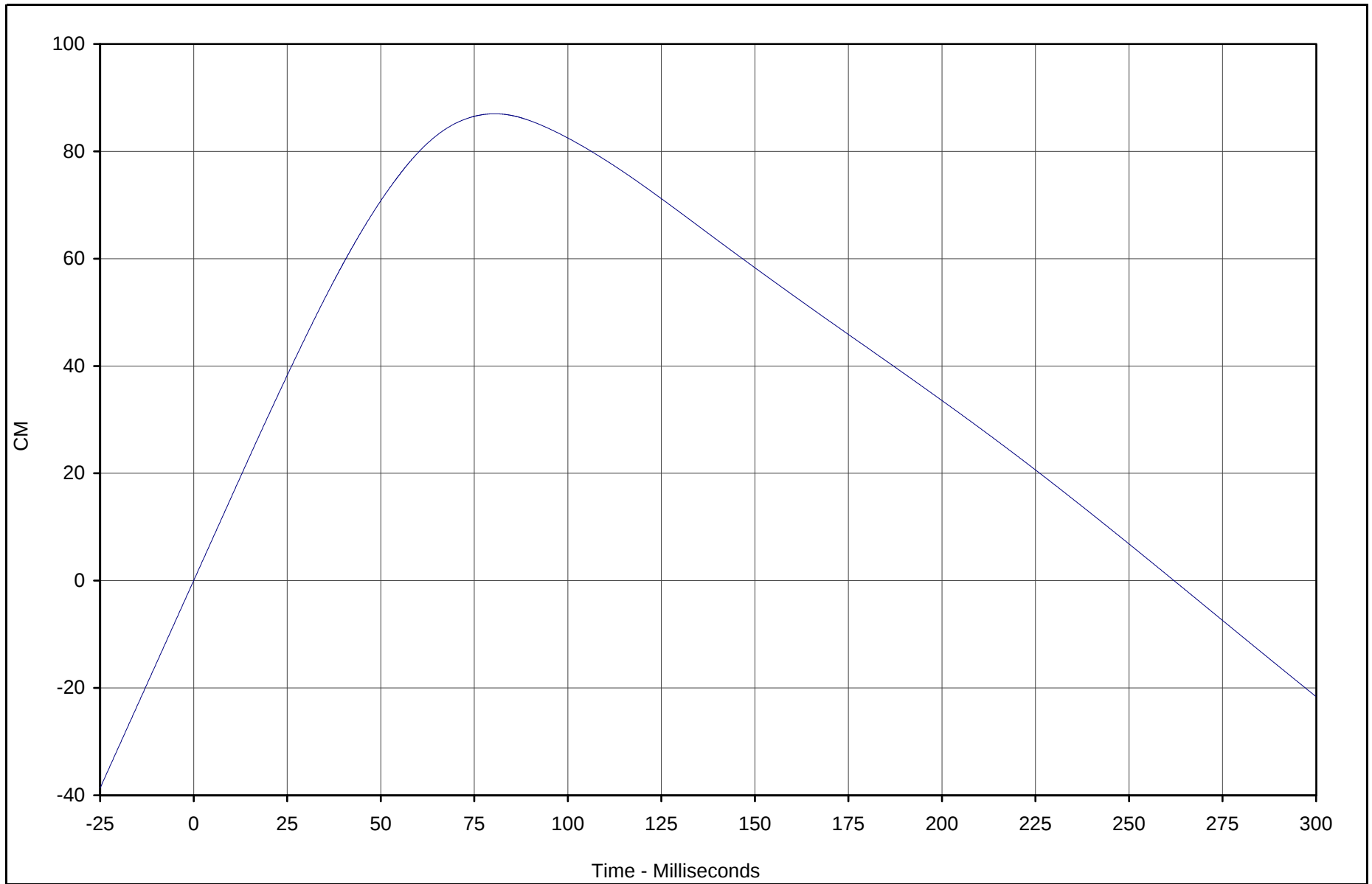


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Chest Redundant X Displ.	060	IN2	CM	87.0	80.5	-21.6	299.9	180

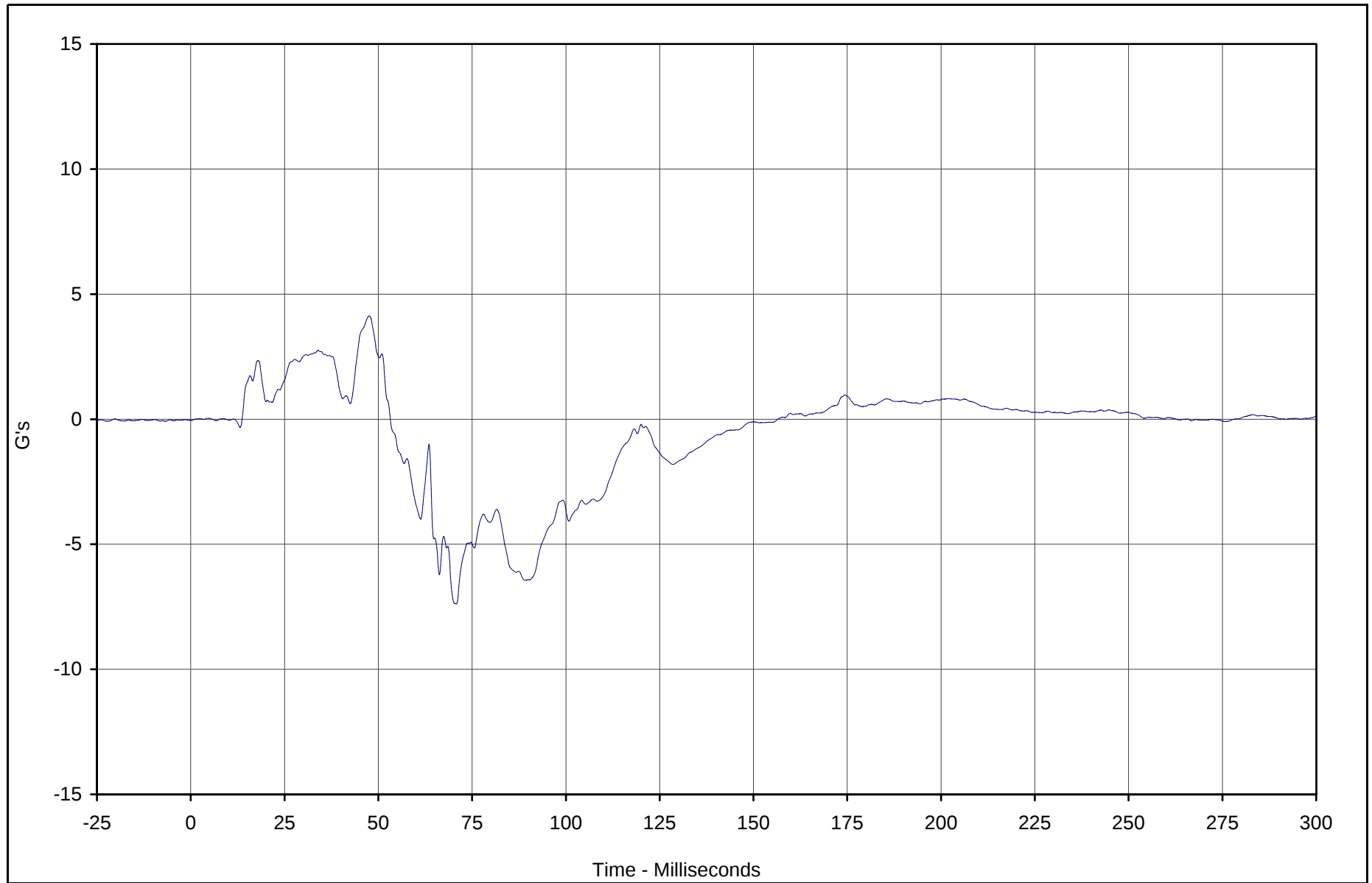


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Chest Redundant Y	061	FIL	G's	4.1	47.6	-7.4	70.8	180



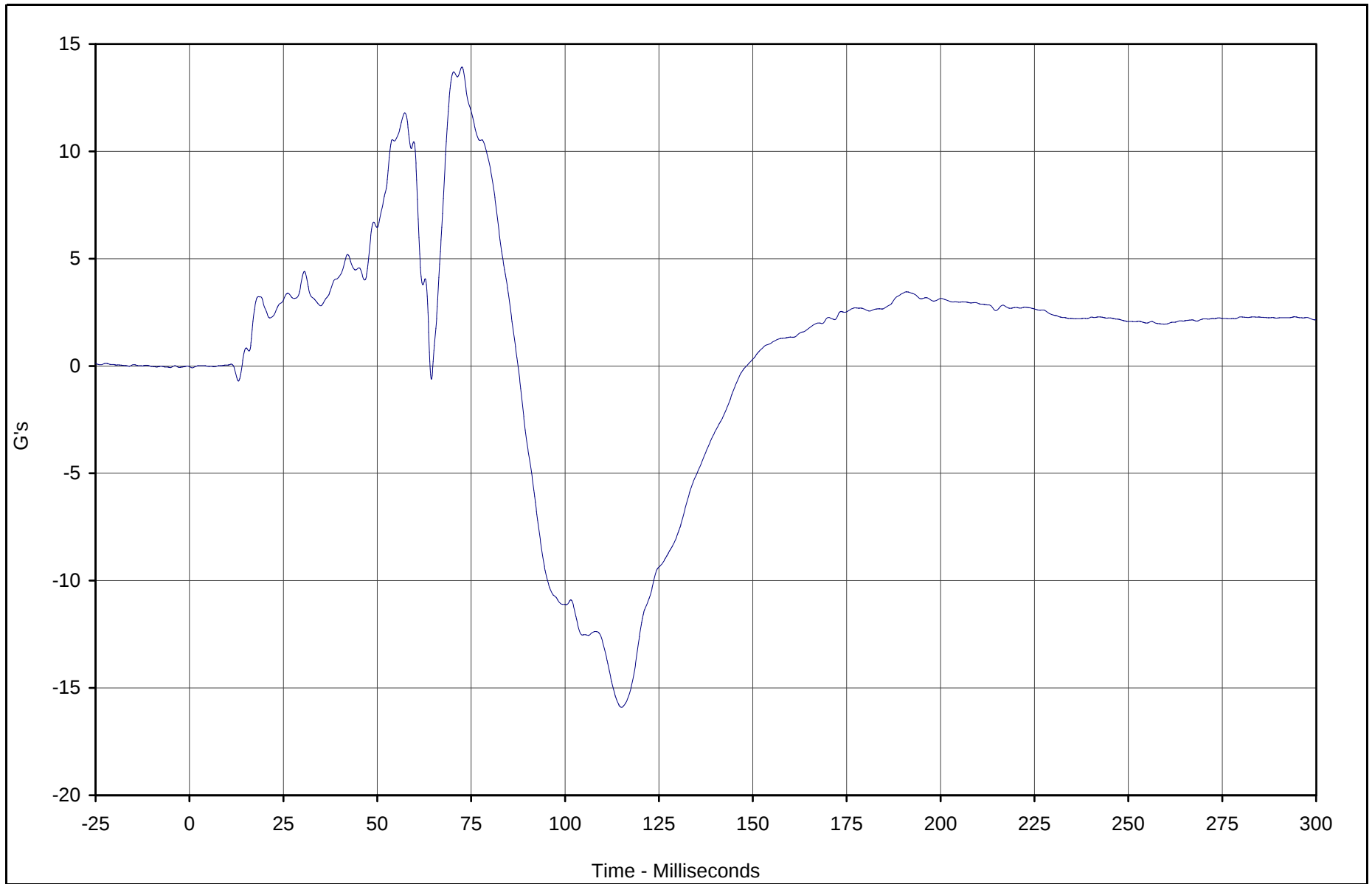
Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

B-92



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Chest Redundant Z	062	FIL	G's	13.9	72.5	-15.9	115.0	180



Test Vehicle: 2002 Mazda MPV LX Minivan

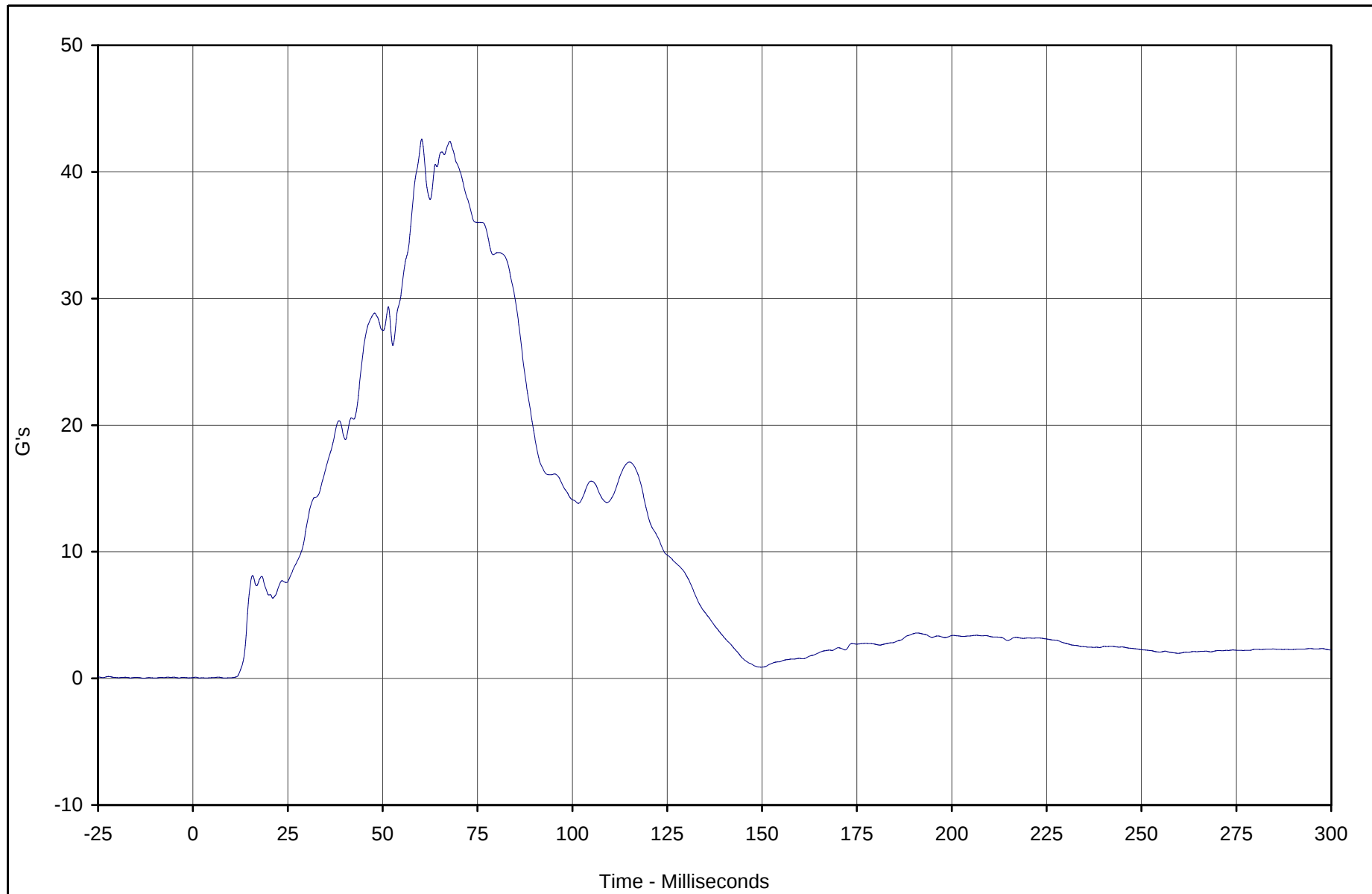
Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

KAR22001-08

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Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Chest Resultant Redundant	060	RES	G's	42.6	60.3	0.0	3.4	180



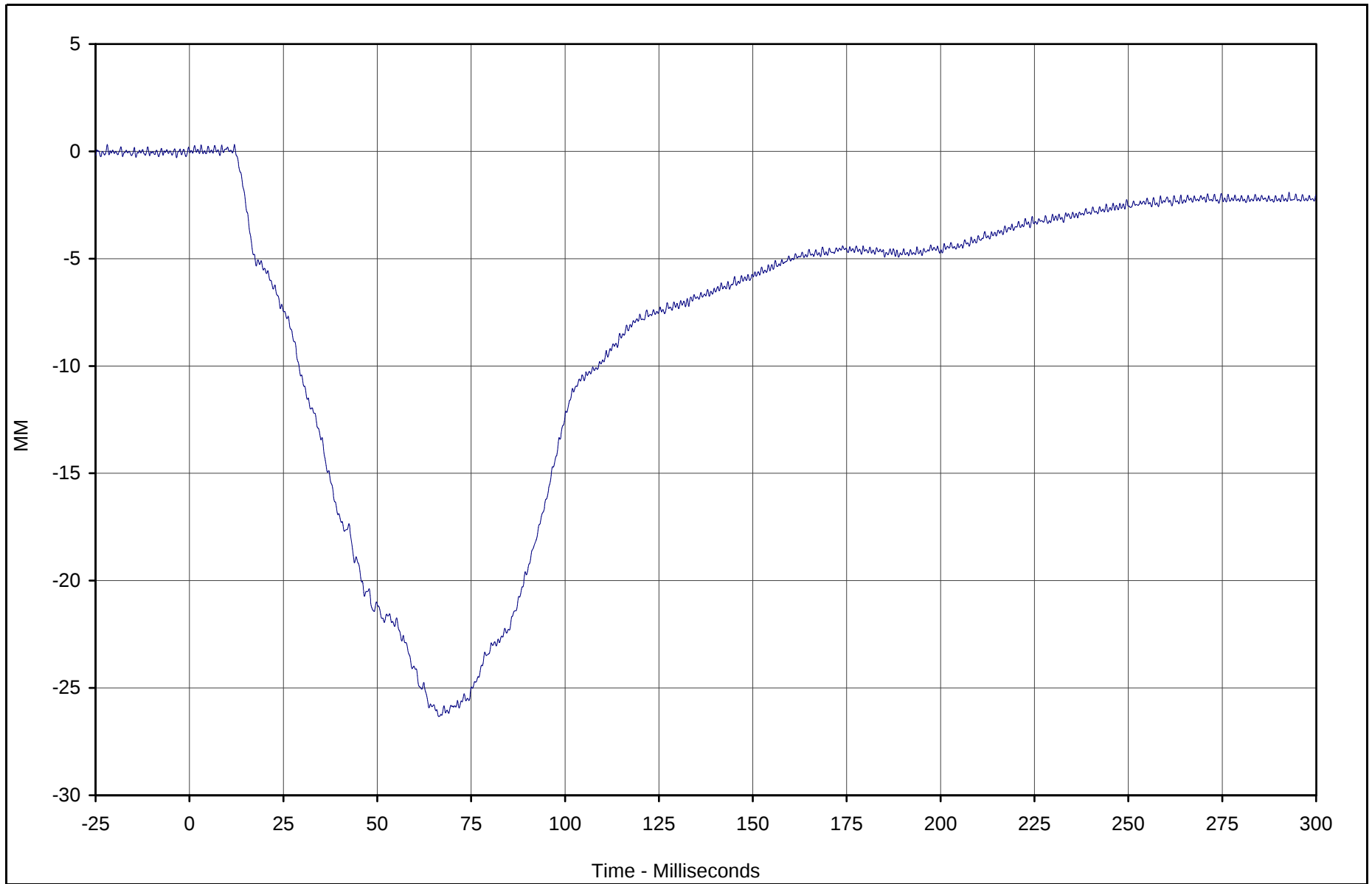
Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

KAR22001-08



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Chest Displacement X	063	FIL	MM	0.3	12.0	-26.3	66.4	600

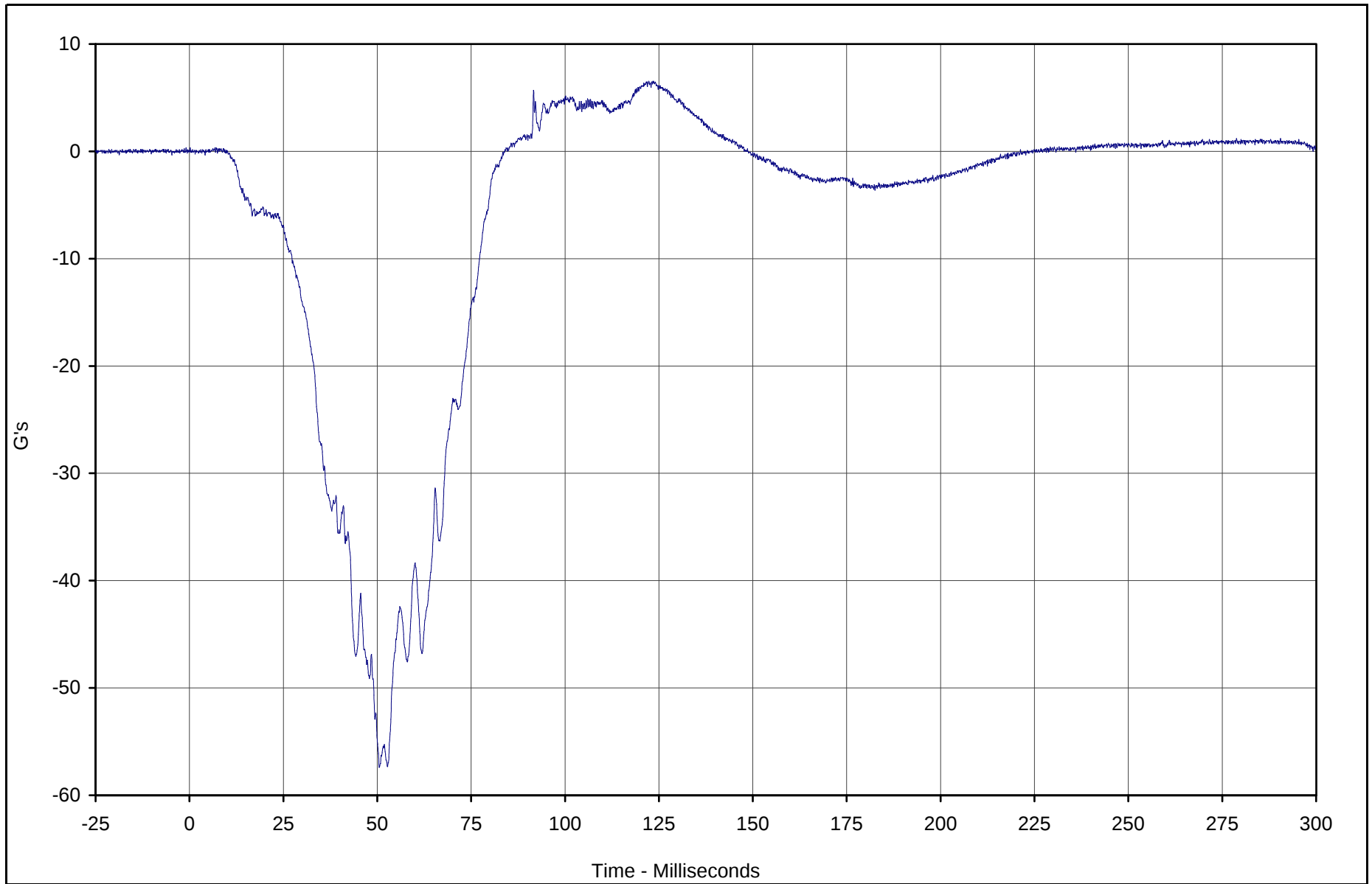


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Pelvis X	064	FIL	G's	6.5	122.3	-57.4	50.5	1000

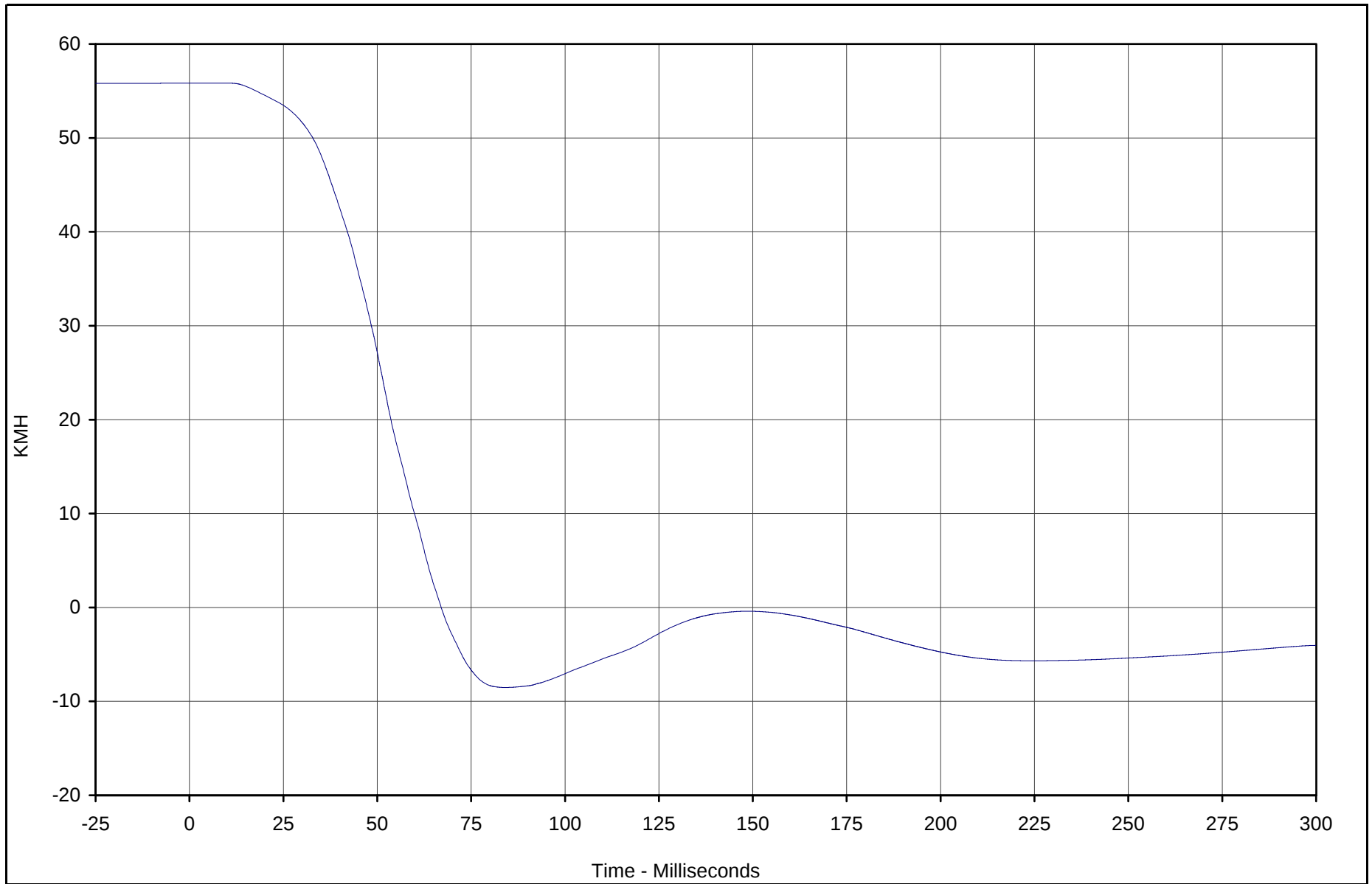


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Pelvis X Velocity	064	IN1	KMH	55.8	9.6	-8.5	84.0	180

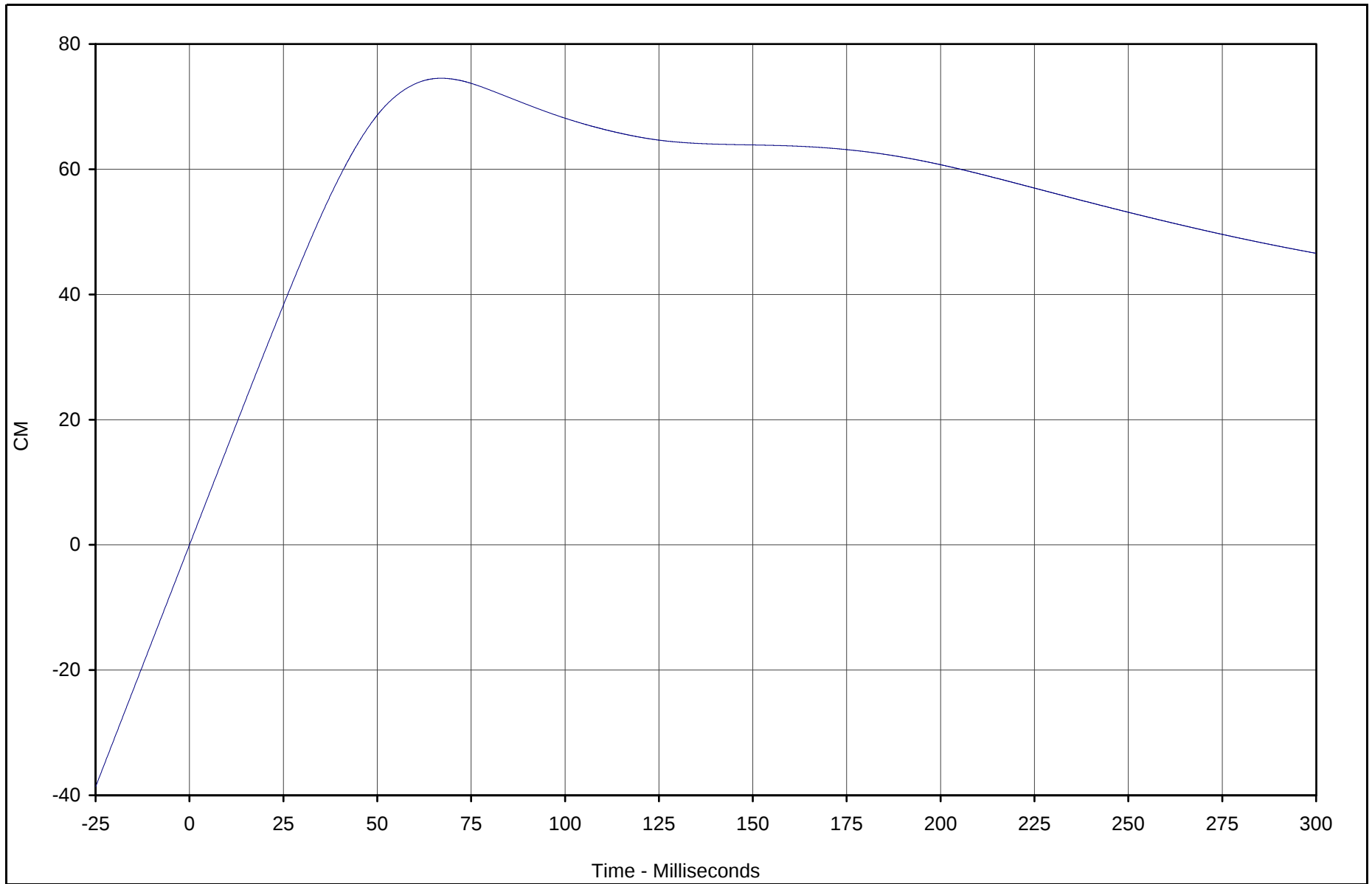


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Pelvis X Displ.	064	IN2	CM	74.5	67.0	0.0	0.0	180

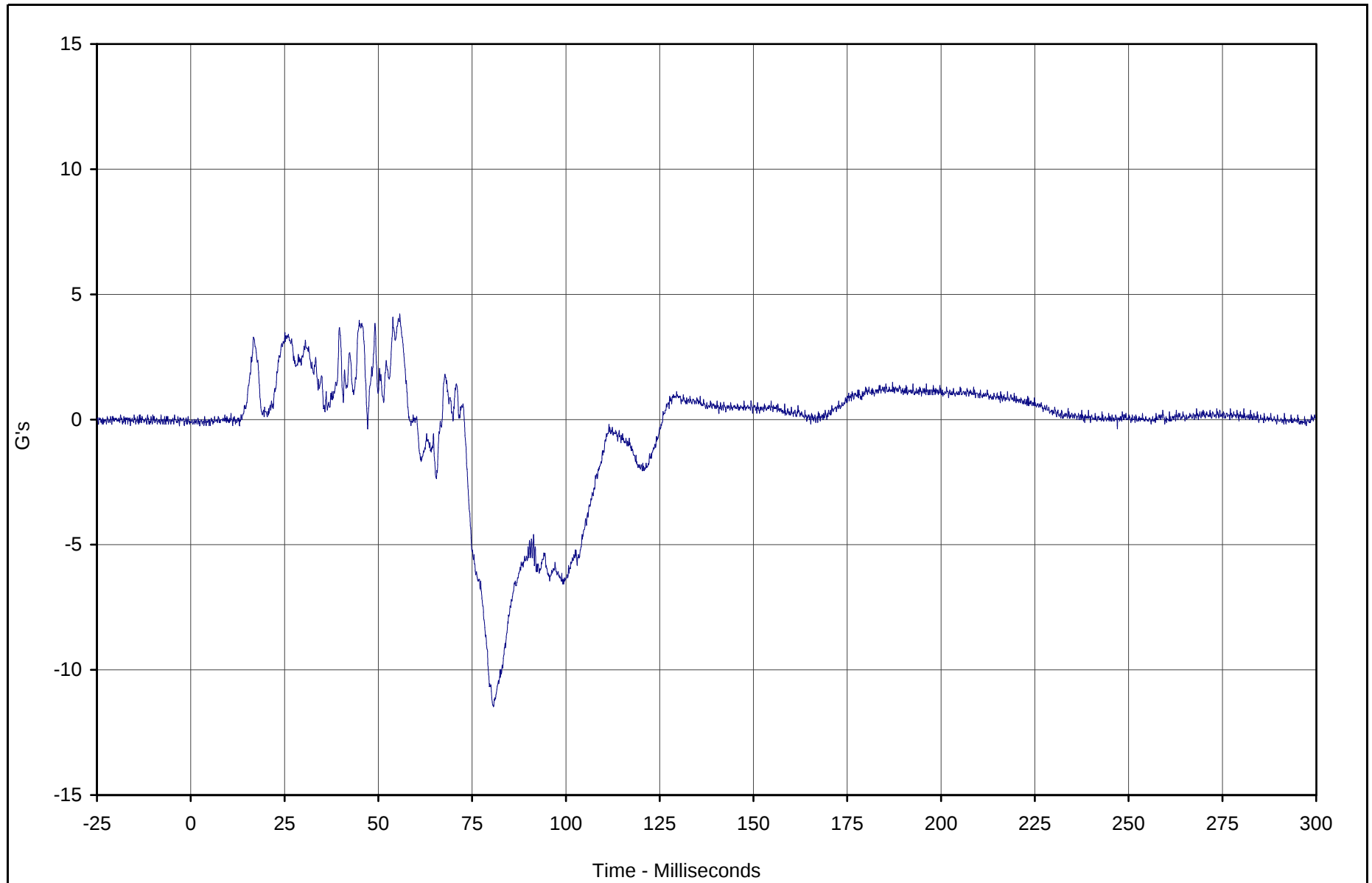


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Pelvis Y	065	FIL	G's	4.2	55.7	-11.5	80.7	1000

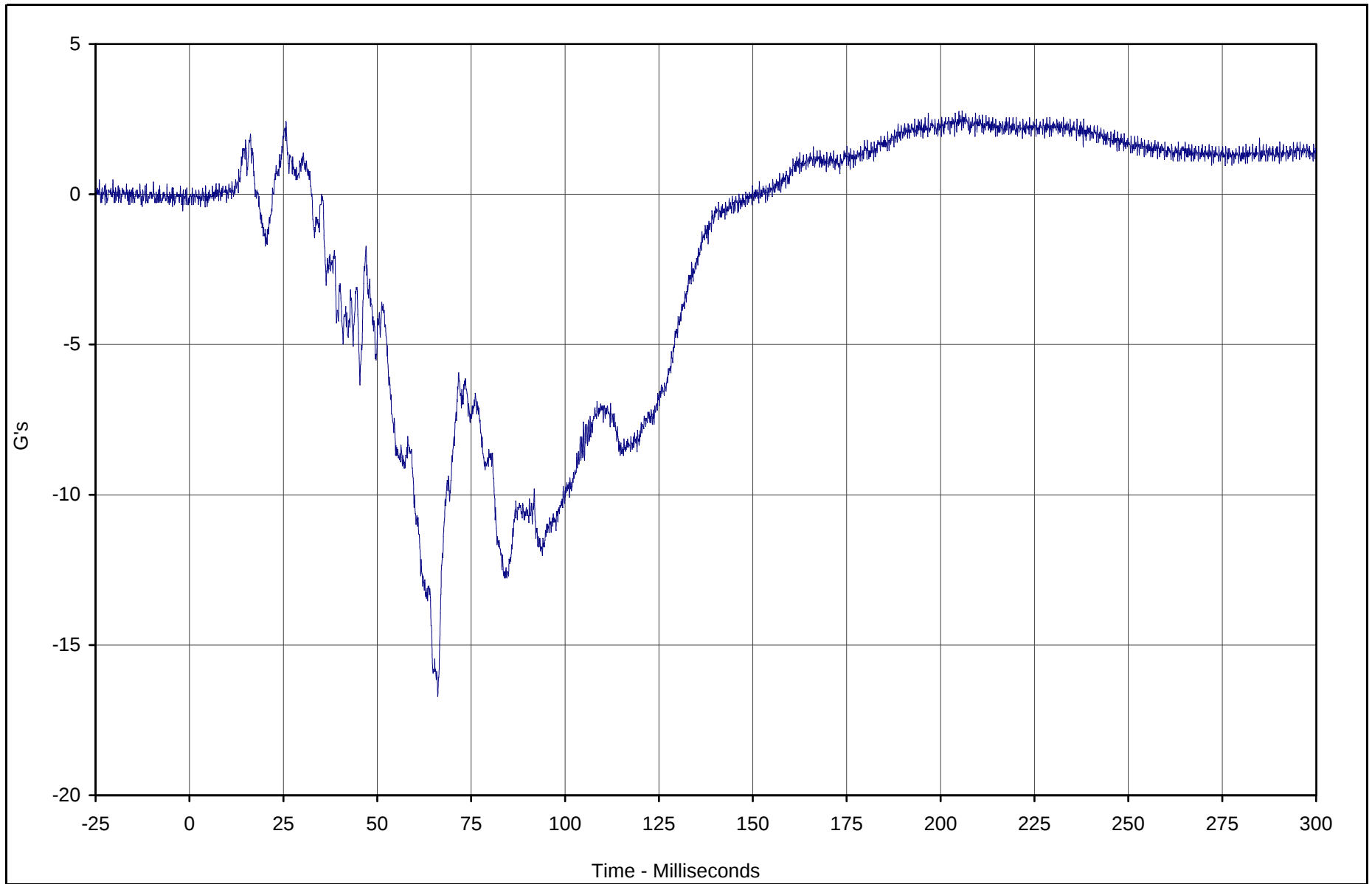


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Pelvis Z	066	FIL	G's	2.8	204.9	-16.7	66.1	1000



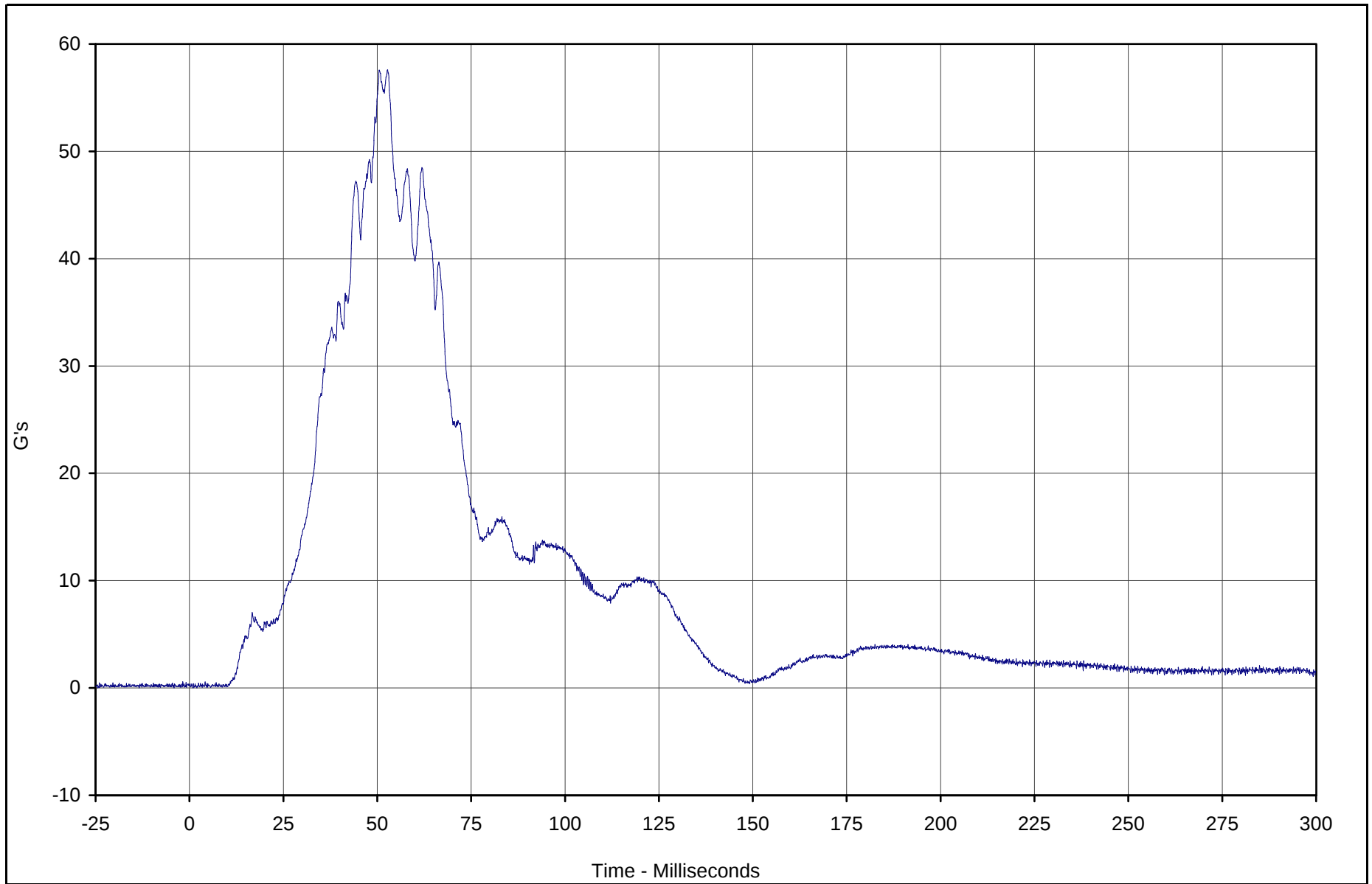
Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

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Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Pelvis Resultant	066	RES	G's	57.6	52.8	0.0	1.0	1000



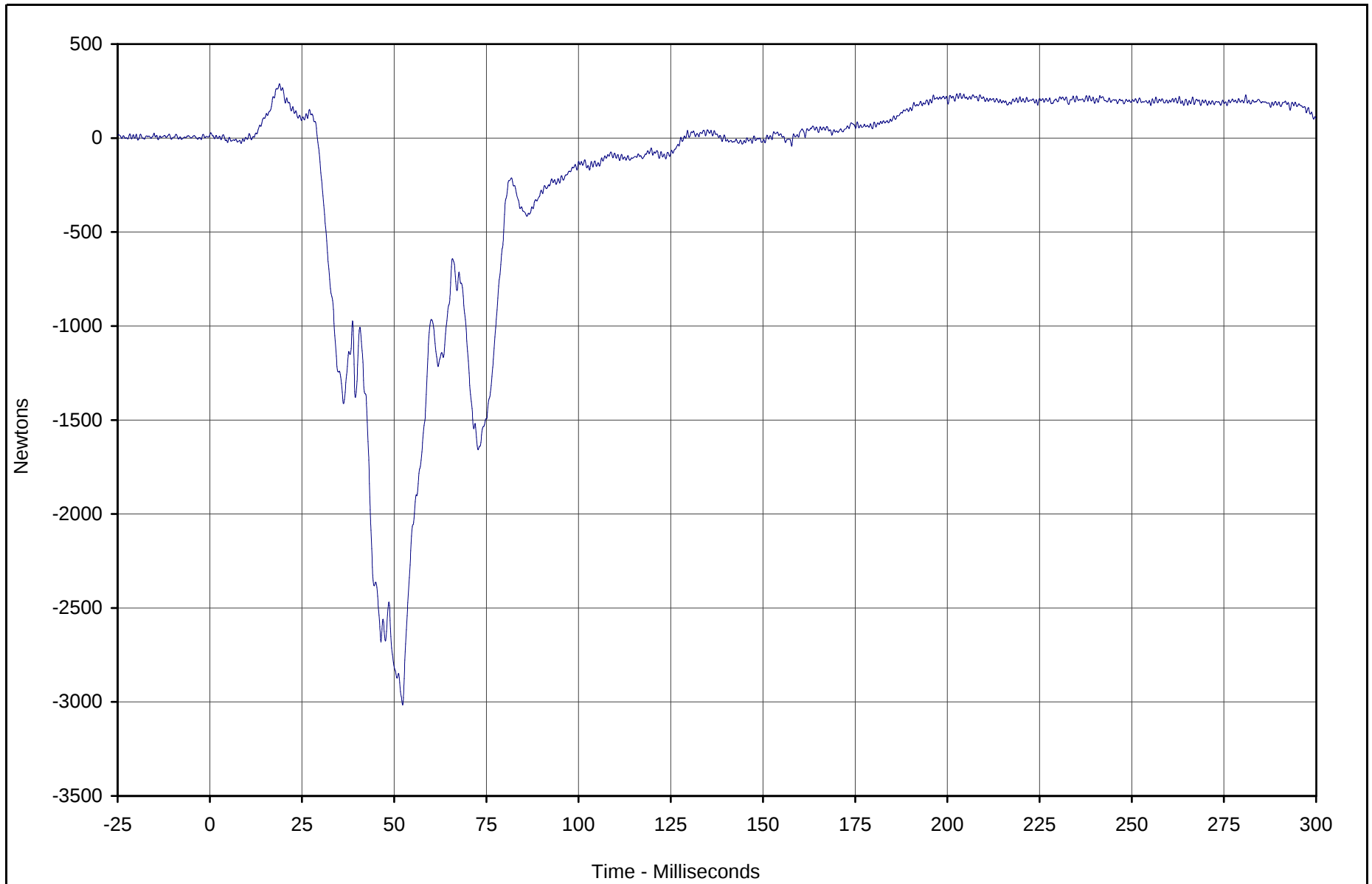
Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

KAR22001-08



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Left Femur Force	067	FIL	Newtons	288.4	18.9	-3016.3	52.3	600

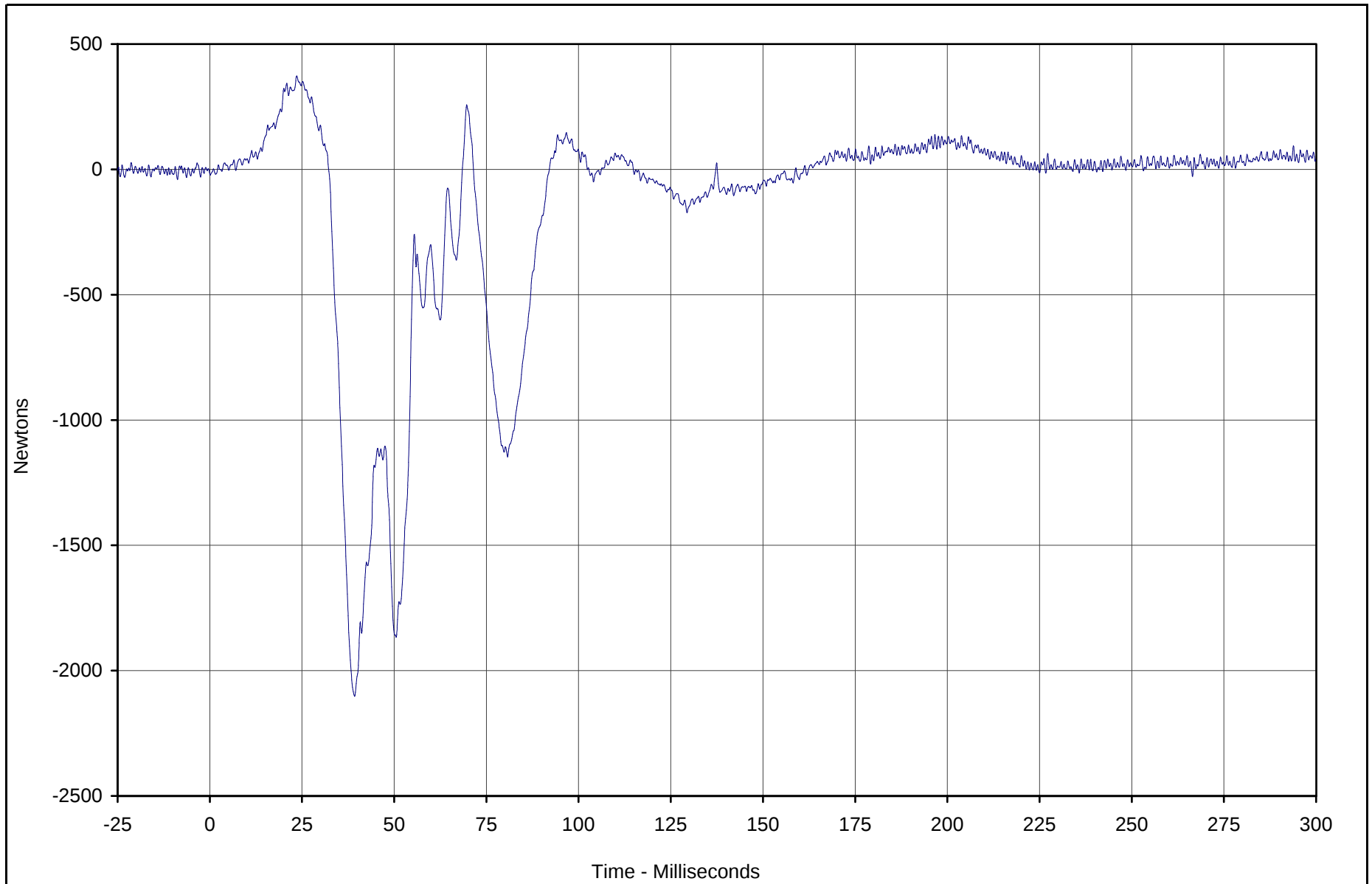


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Right Femur Force	068	FIL	Newtons	372.6	23.6	-2102.5	39.3	600

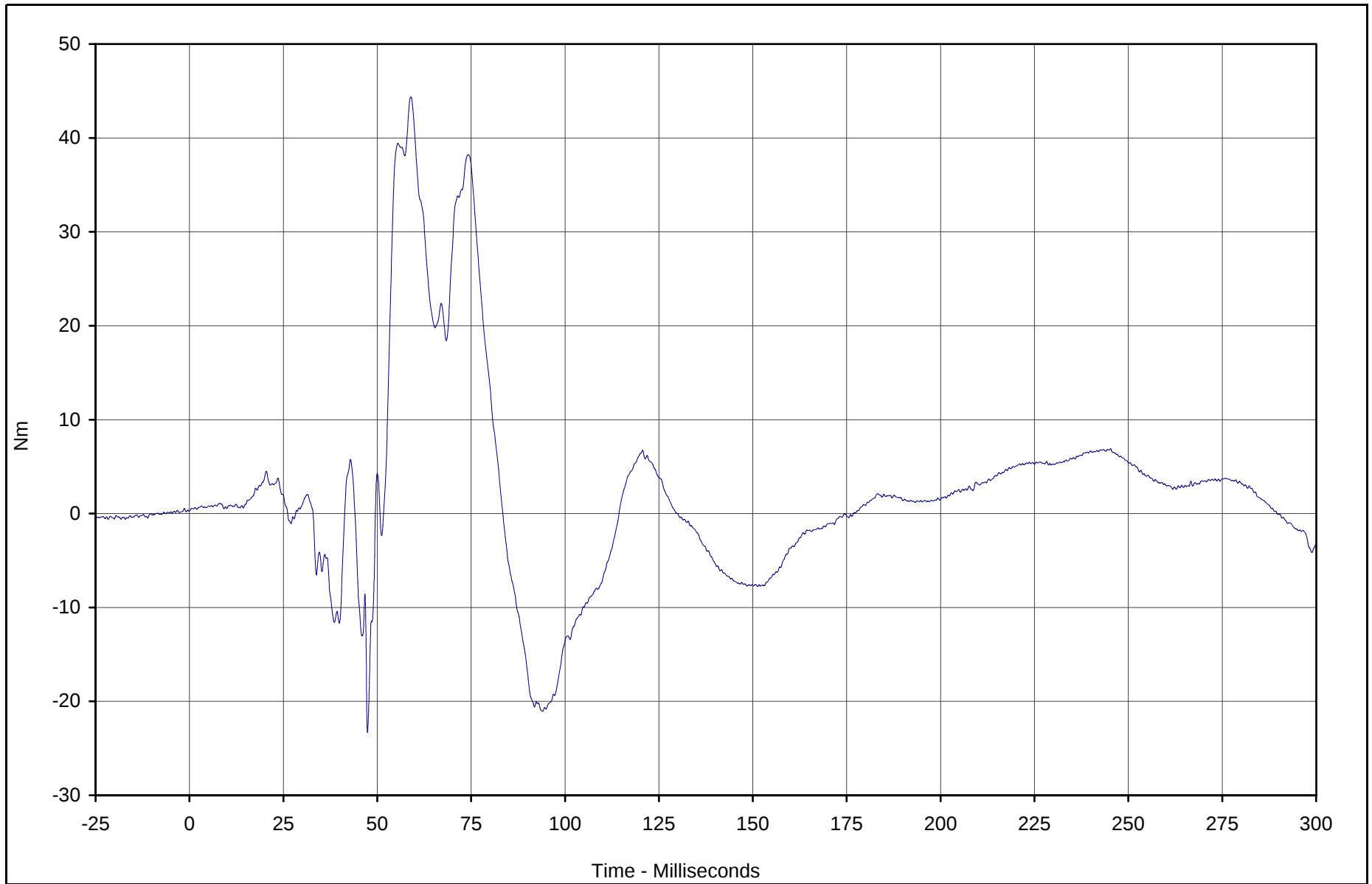


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Left Upper Tibia Moment X	069	FIL	Nm	44.4	58.9	-23.3	47.4	600

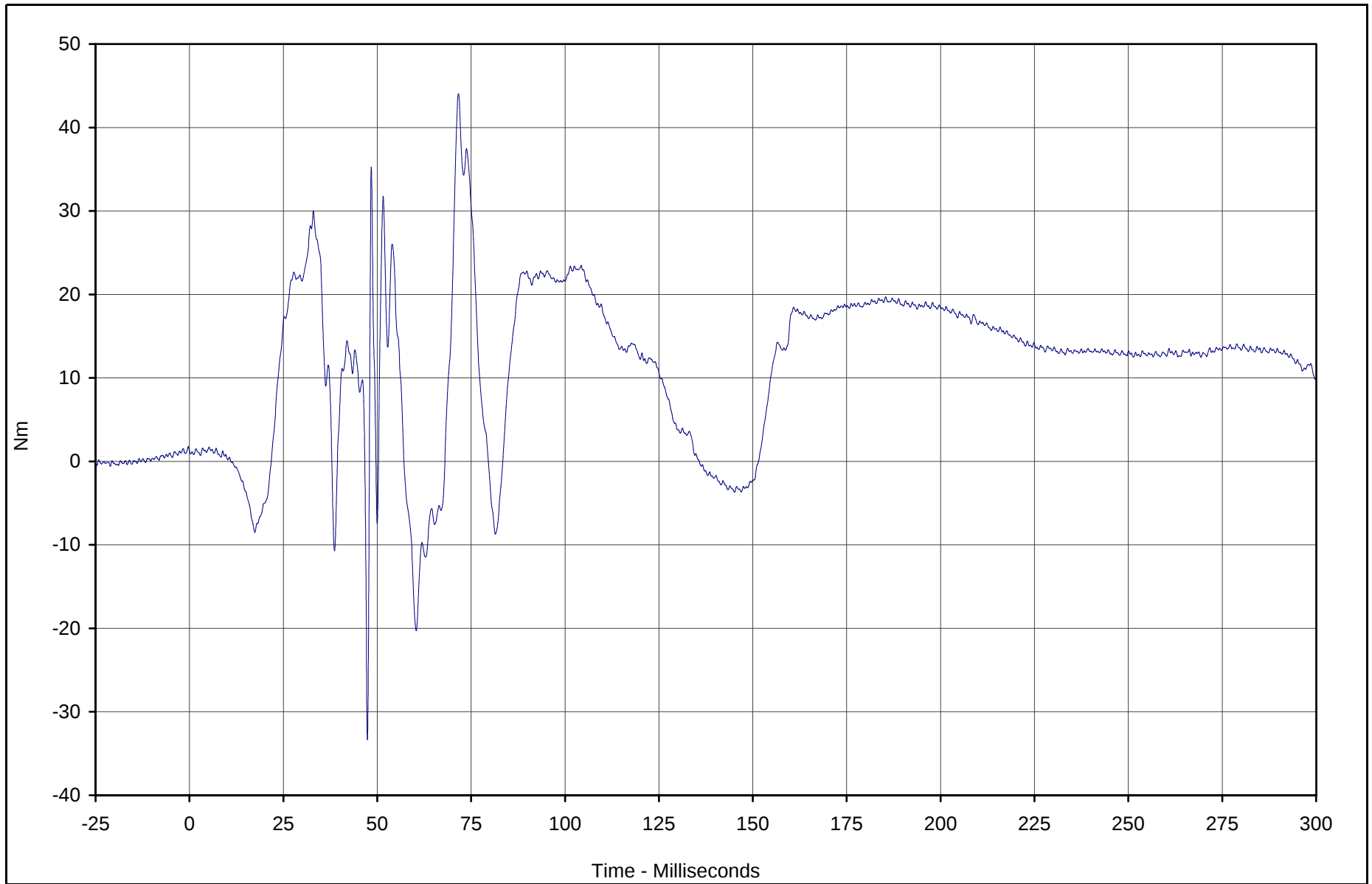


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Left Upper Tibia Moment Y	070	FIL	Nm	44.0	71.6	-33.4	47.4	600

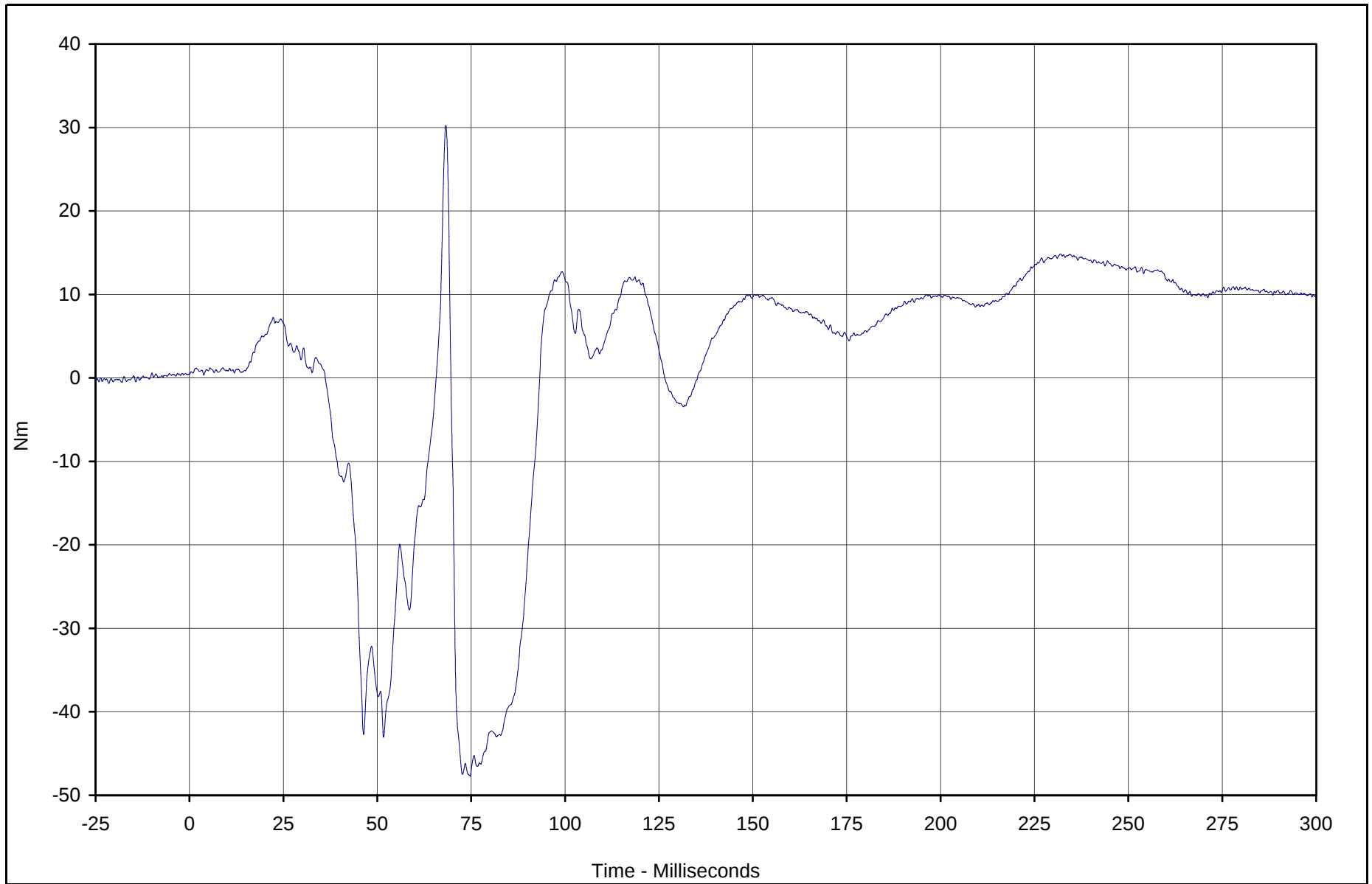


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Right Upper Tibia Moment X	071	FIL	Nm	30.3	68.3	-47.7	74.7	600

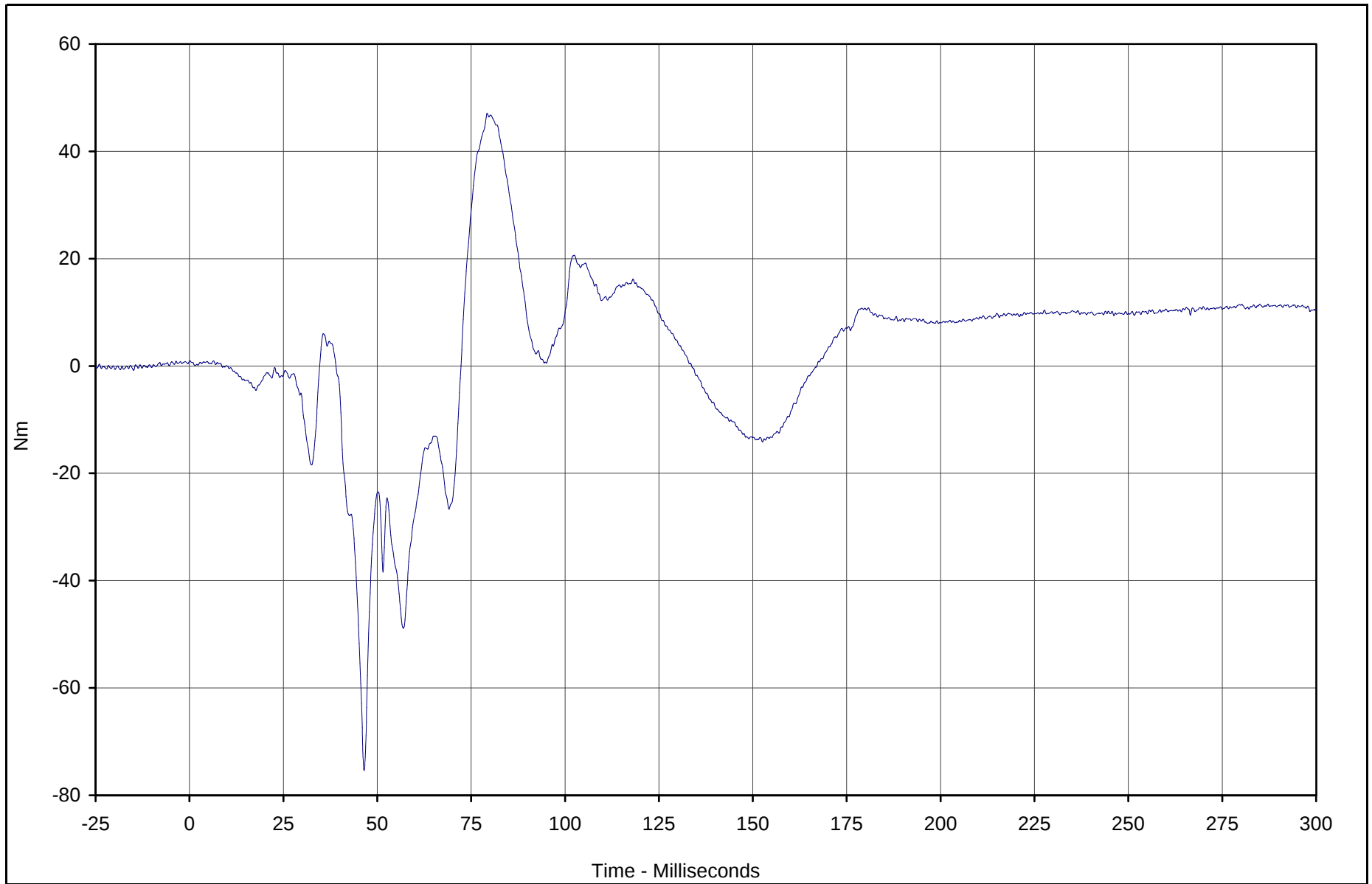


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Right Upper Tibia Moment Y	072	FIL	Nm	47.1	79.3	-75.4	46.5	600

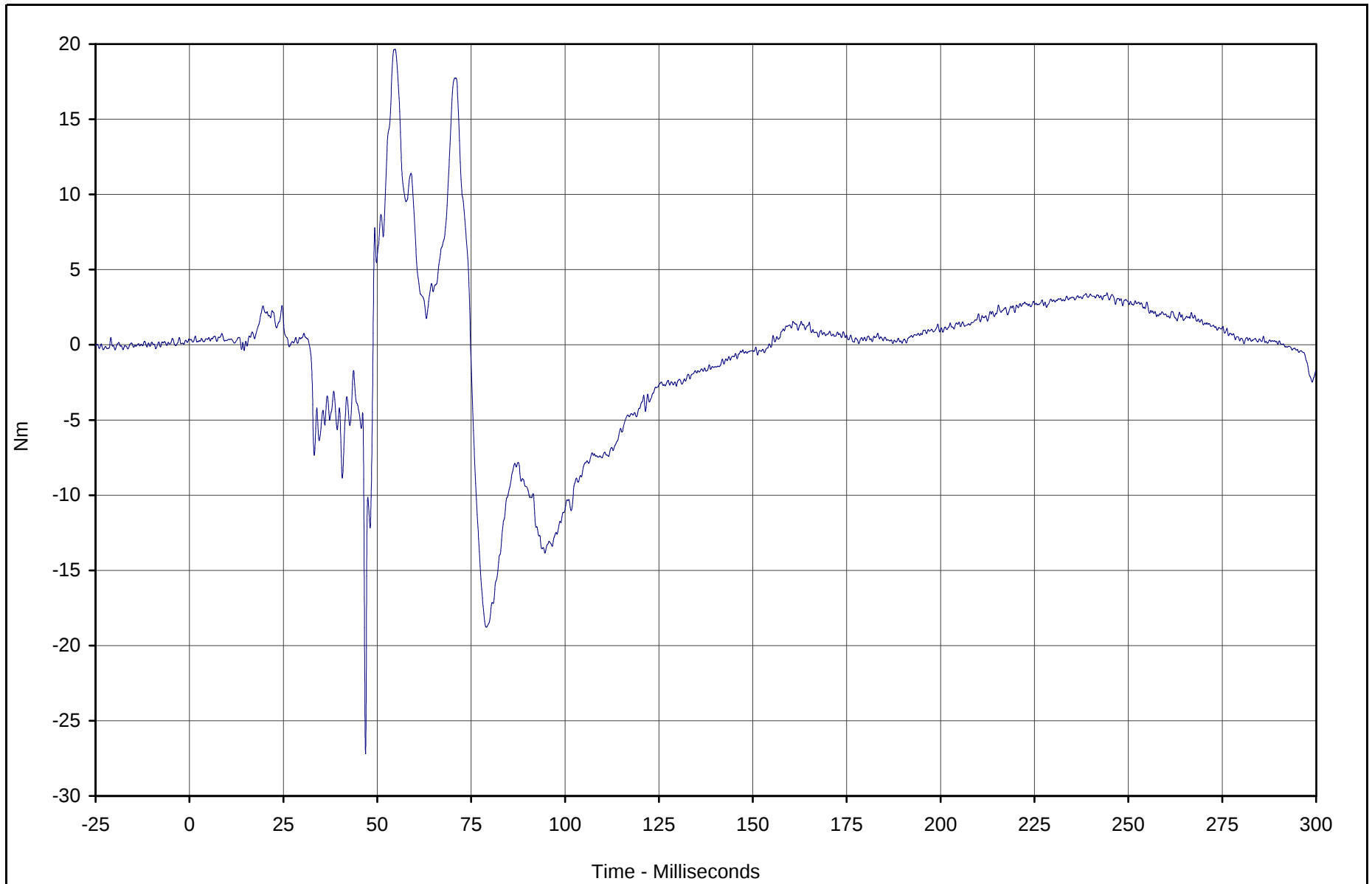


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Left Lower Tibia Moment X	073	FIL	Nm	19.7	54.8	-27.2	46.9	600

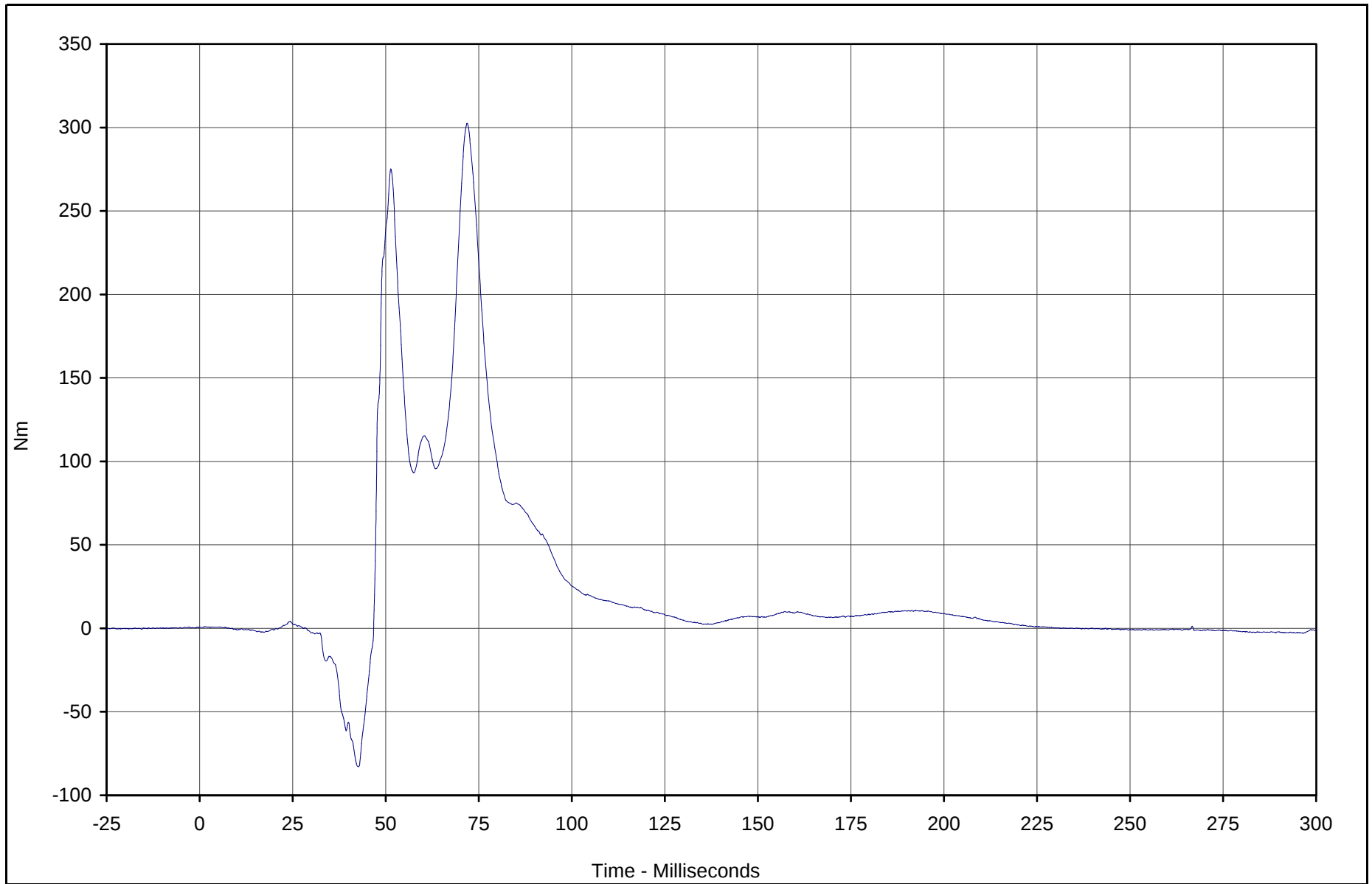


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Left Lower Tibia Moment Y	074	FIL	Nm	302.5	71.9	-82.9	42.6	600

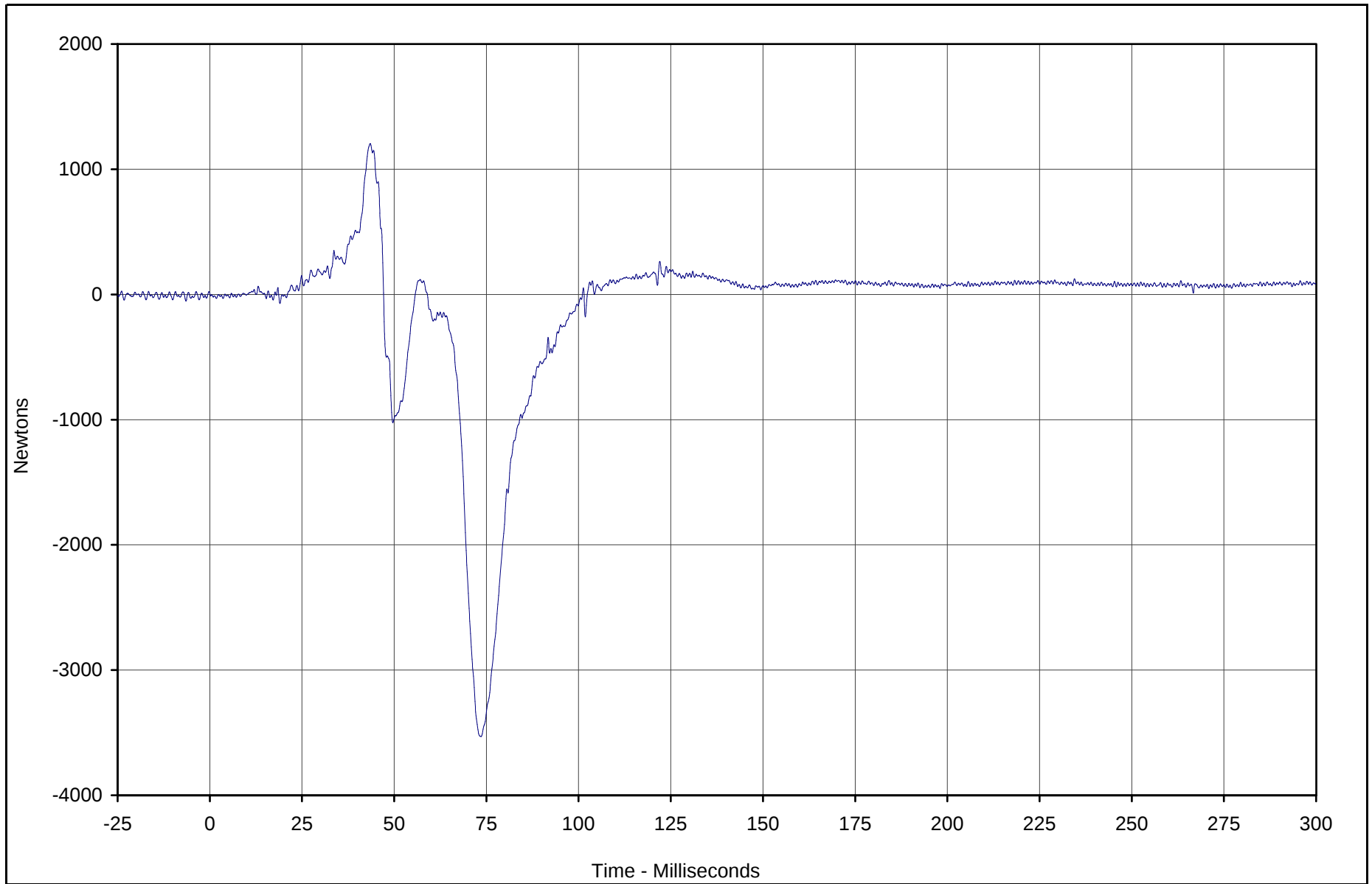


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Left Lower Tibia Force Z	075	FIL	Newtons	1205.2	43.5	-3530.7	73.5	600

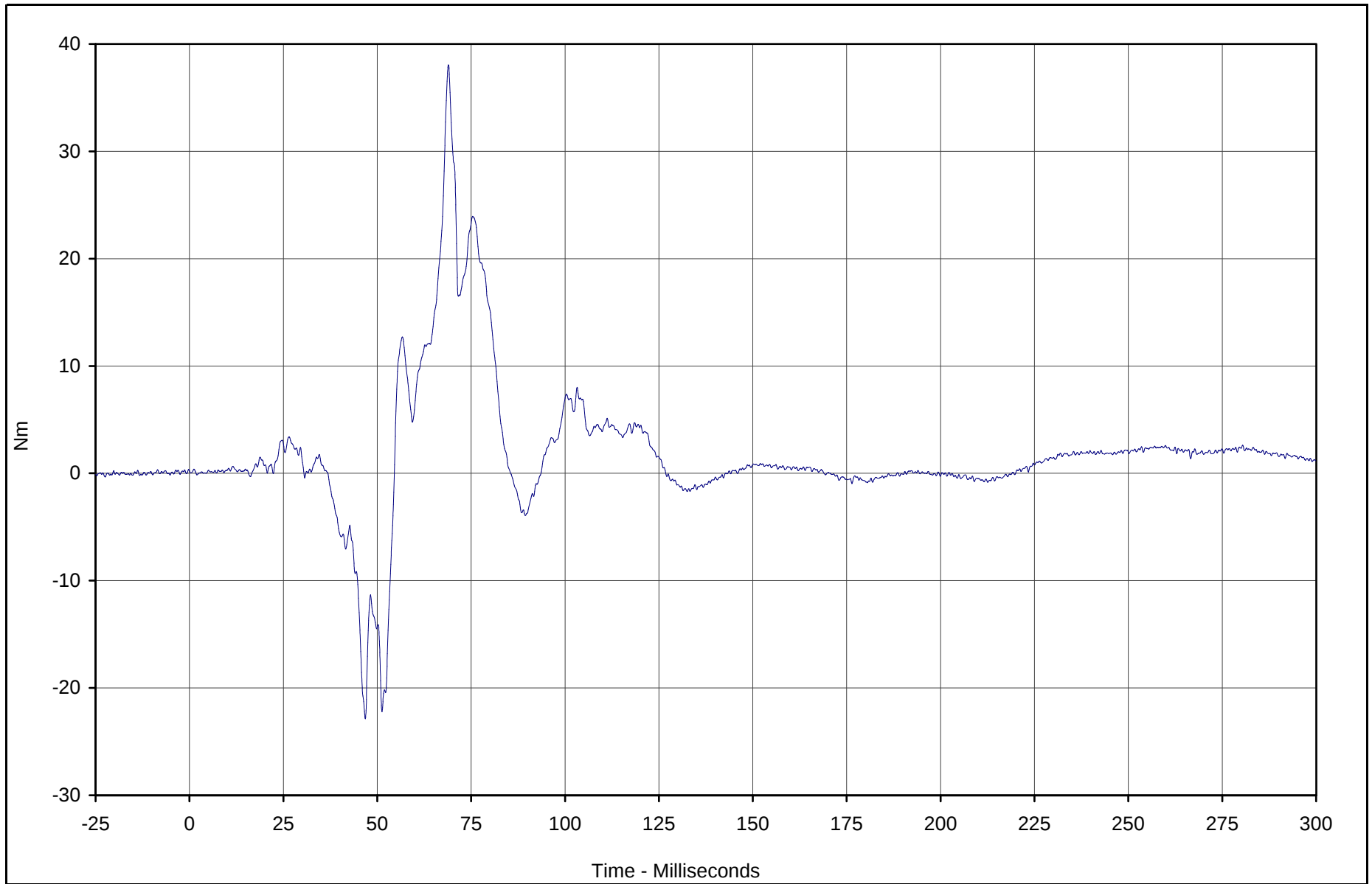


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Right Lower Tibia Moment X	076	FIL	Nm	38.1	68.9	-22.9	46.8	600



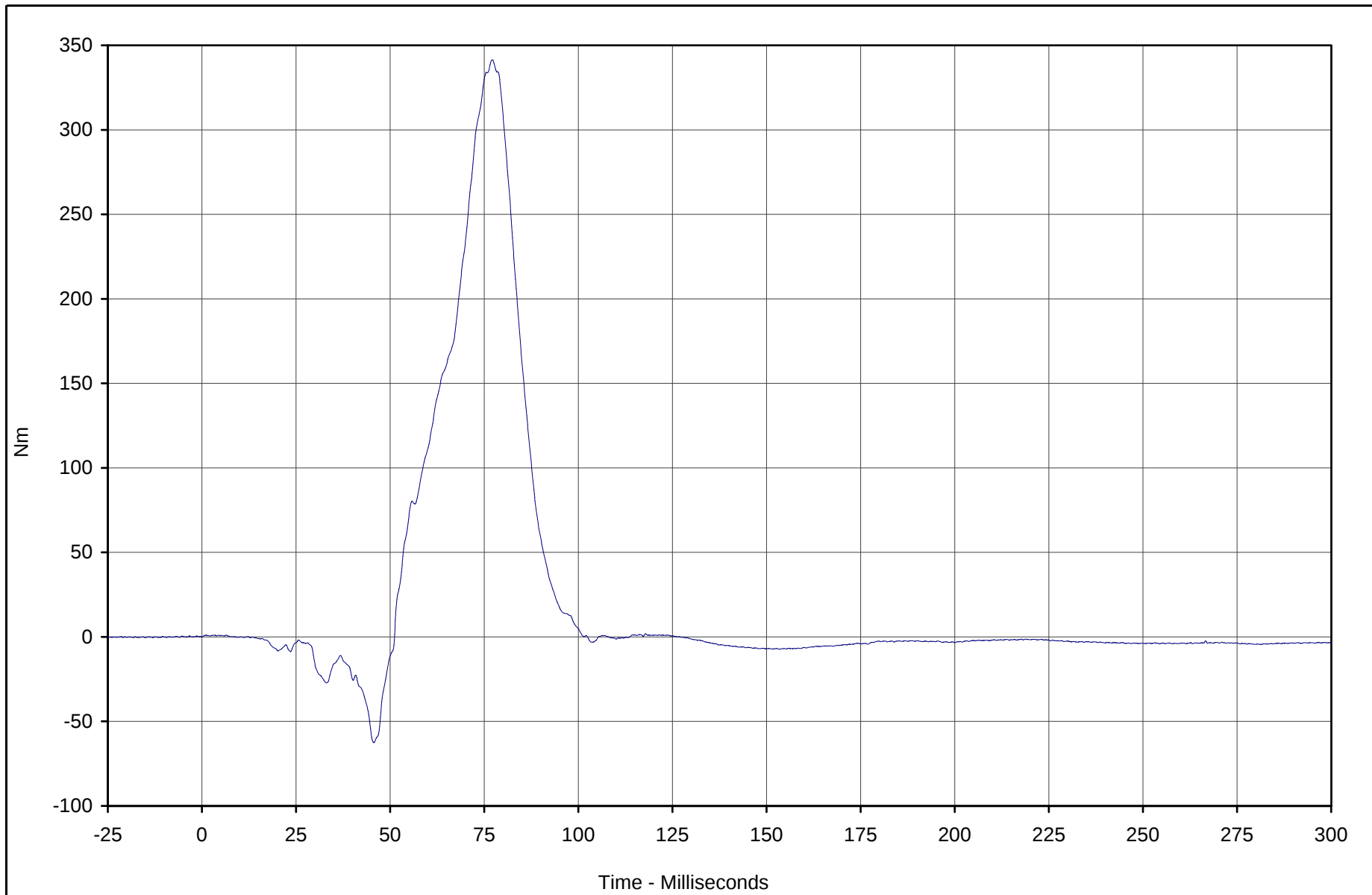
Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

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Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Right Lower Tibia Moment Y	077	FIL	Nm	341.4	77.1	-62.5	45.7	600



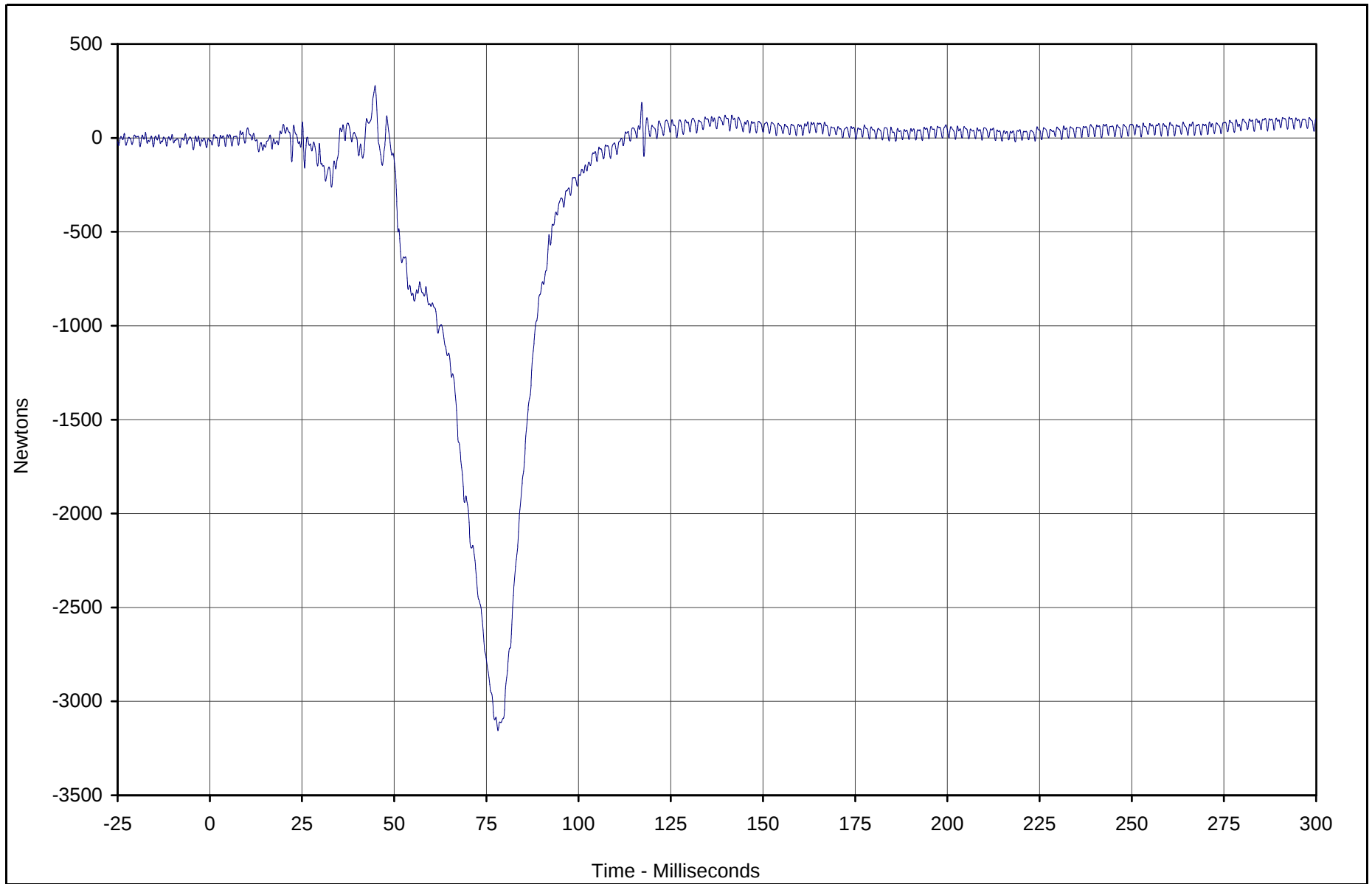
Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

KAR22001-08



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Right lower Tibia Force Z	078	FIL	Newtons	278.6	44.8	-3155.5	78.1	600

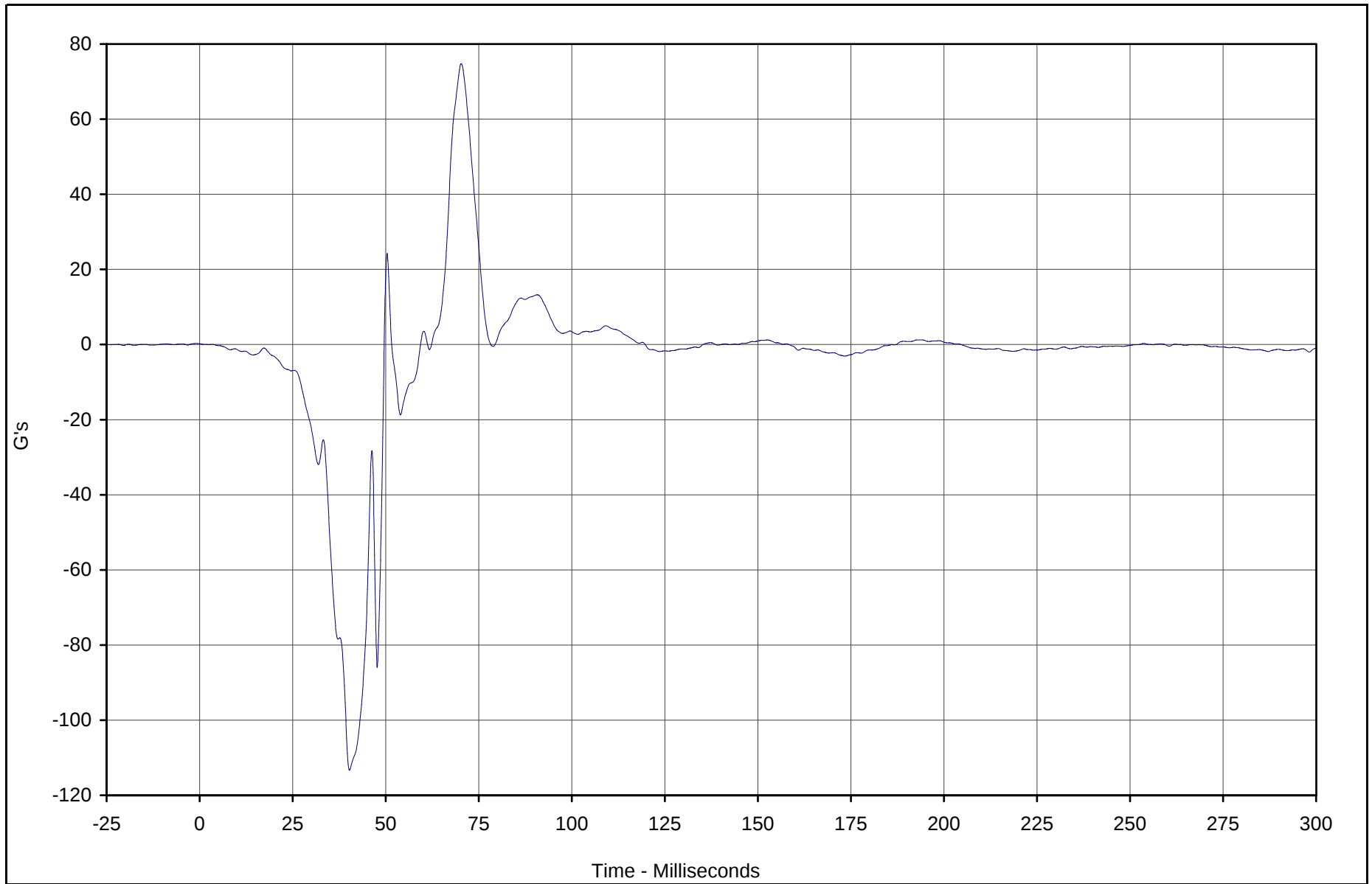


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Left Foot Aft X	079	FIL	G's	74.8	70.3	-113.4	40.2	180



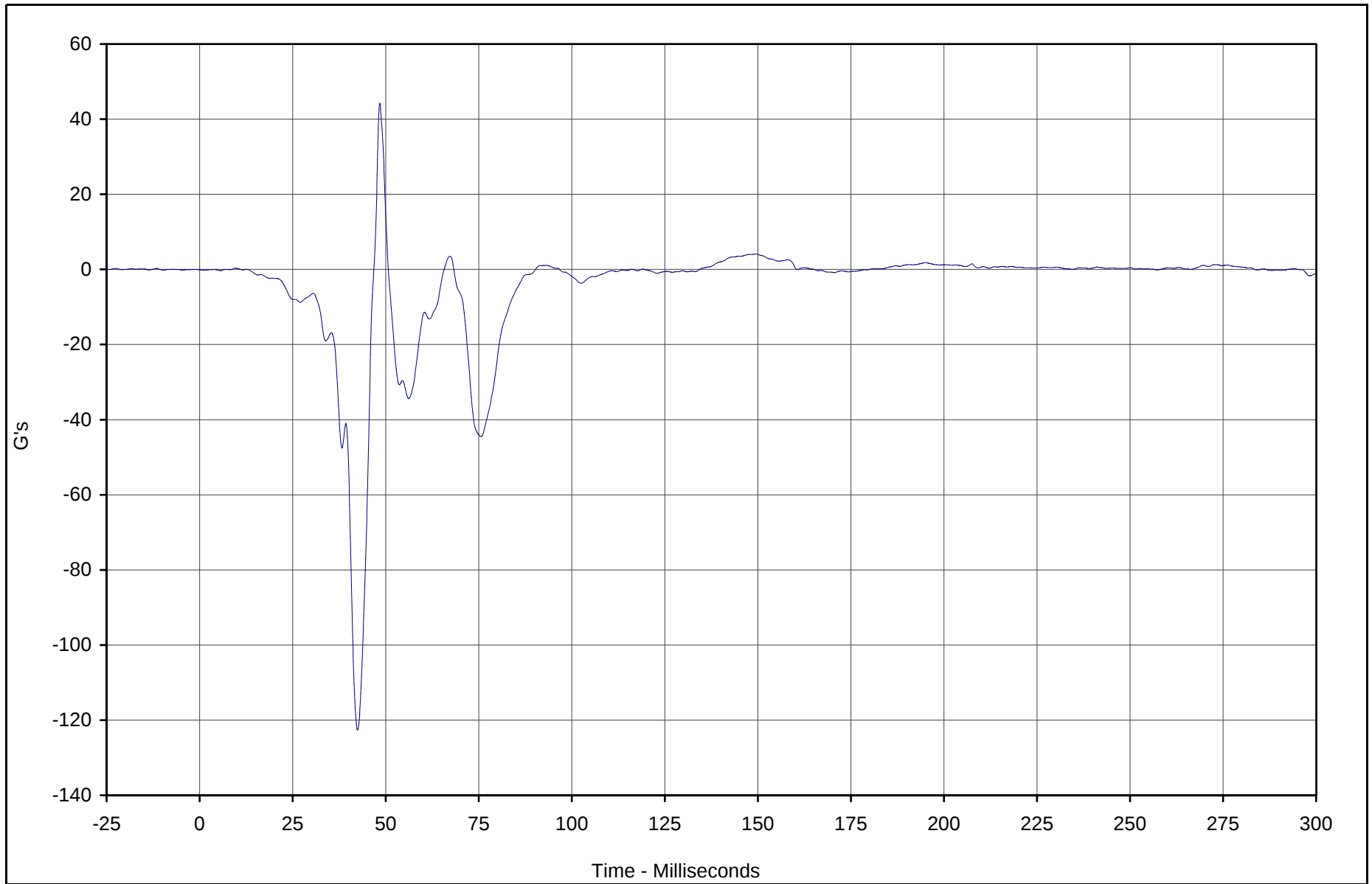
Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

B-114



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Left Foot Aft Z	080	FIL	G's	44.2	48.4	-122.6	42.4	180



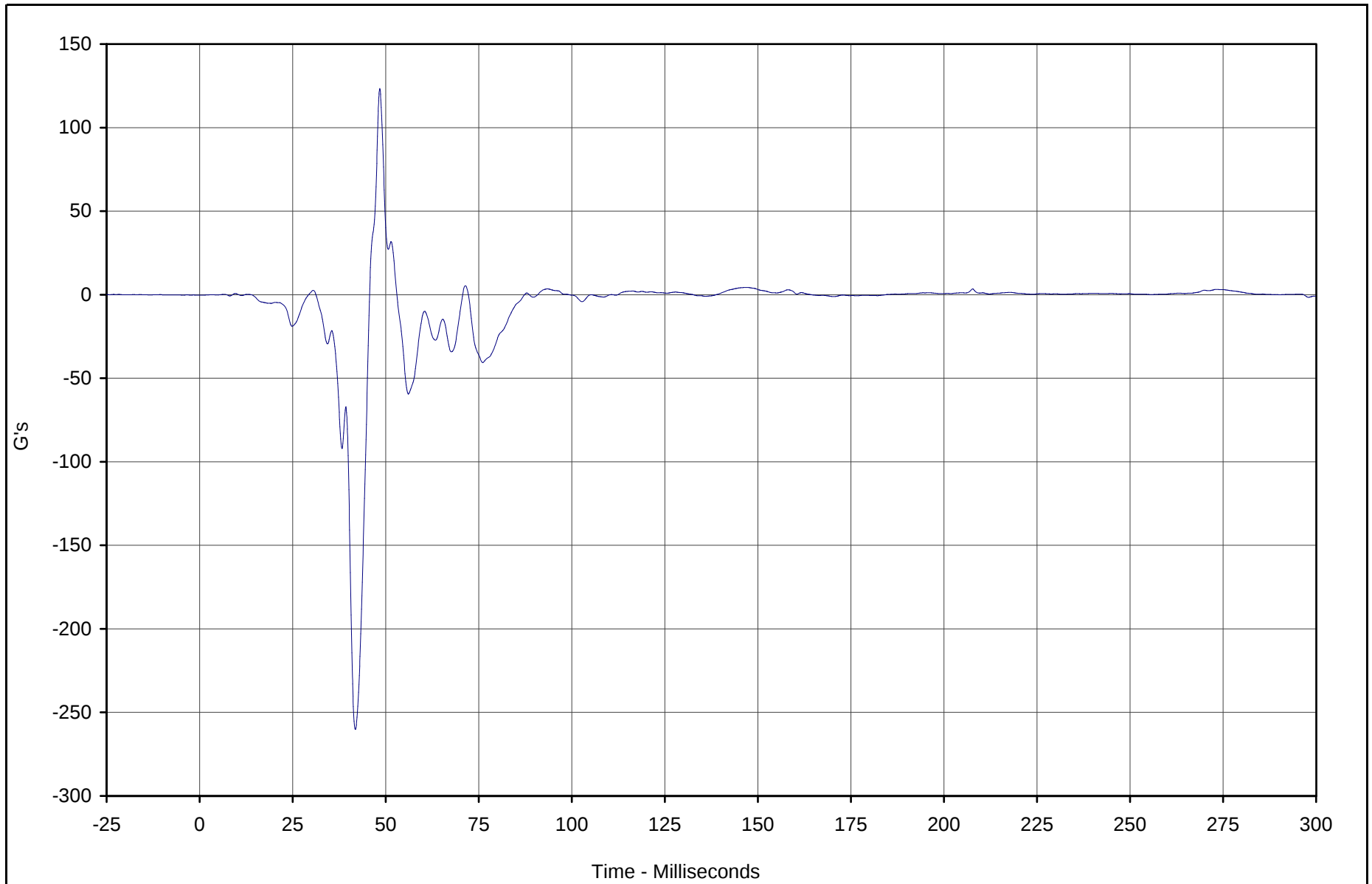
Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

KAR22001-08



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Left Foot Fore Z	081	FIL	G's	123.4	48.4	-260.2	41.8	180

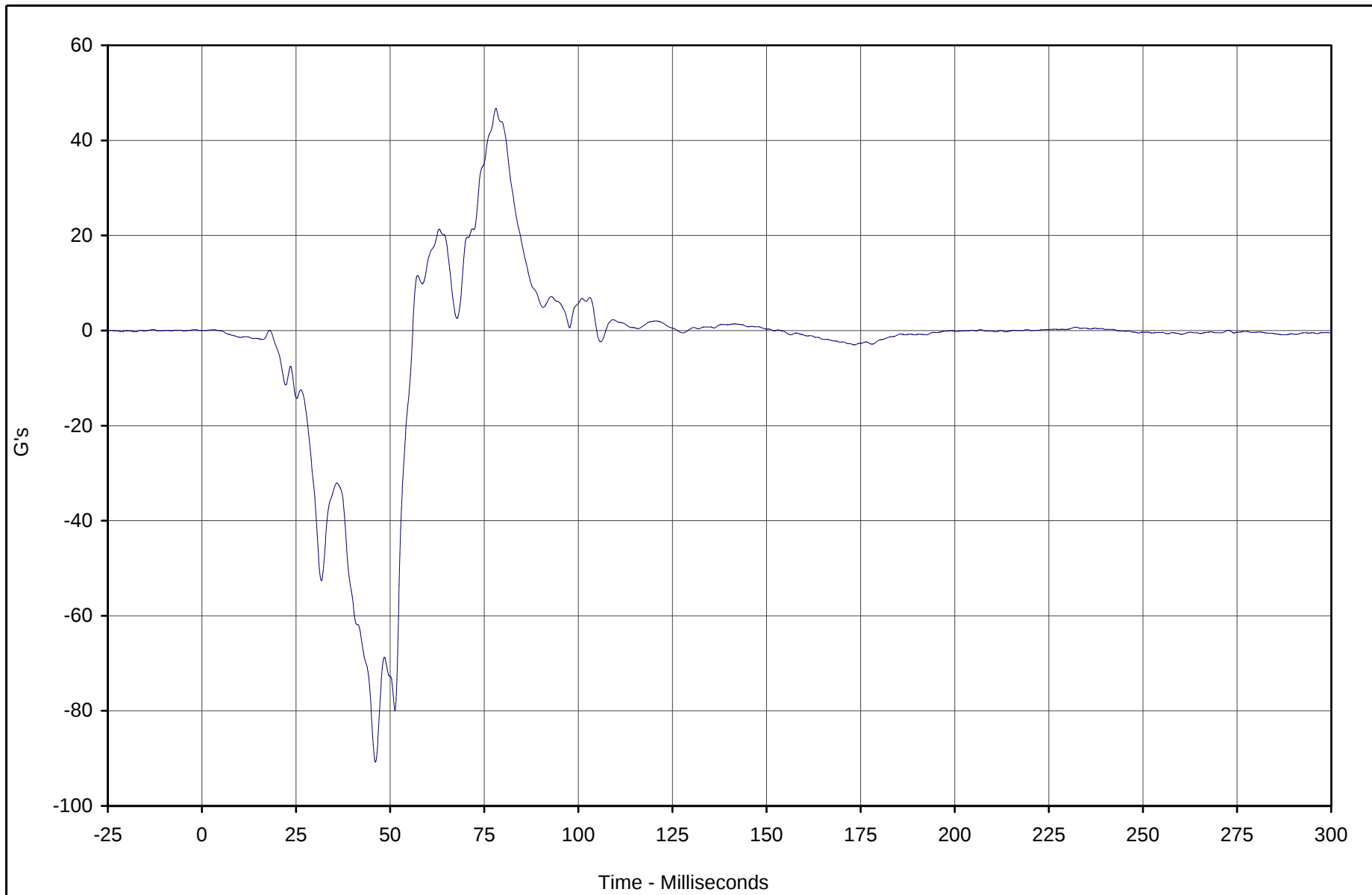


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Right Foot Aft X	082	FIL	G's	46.7	78.1	-90.8	46.1	180

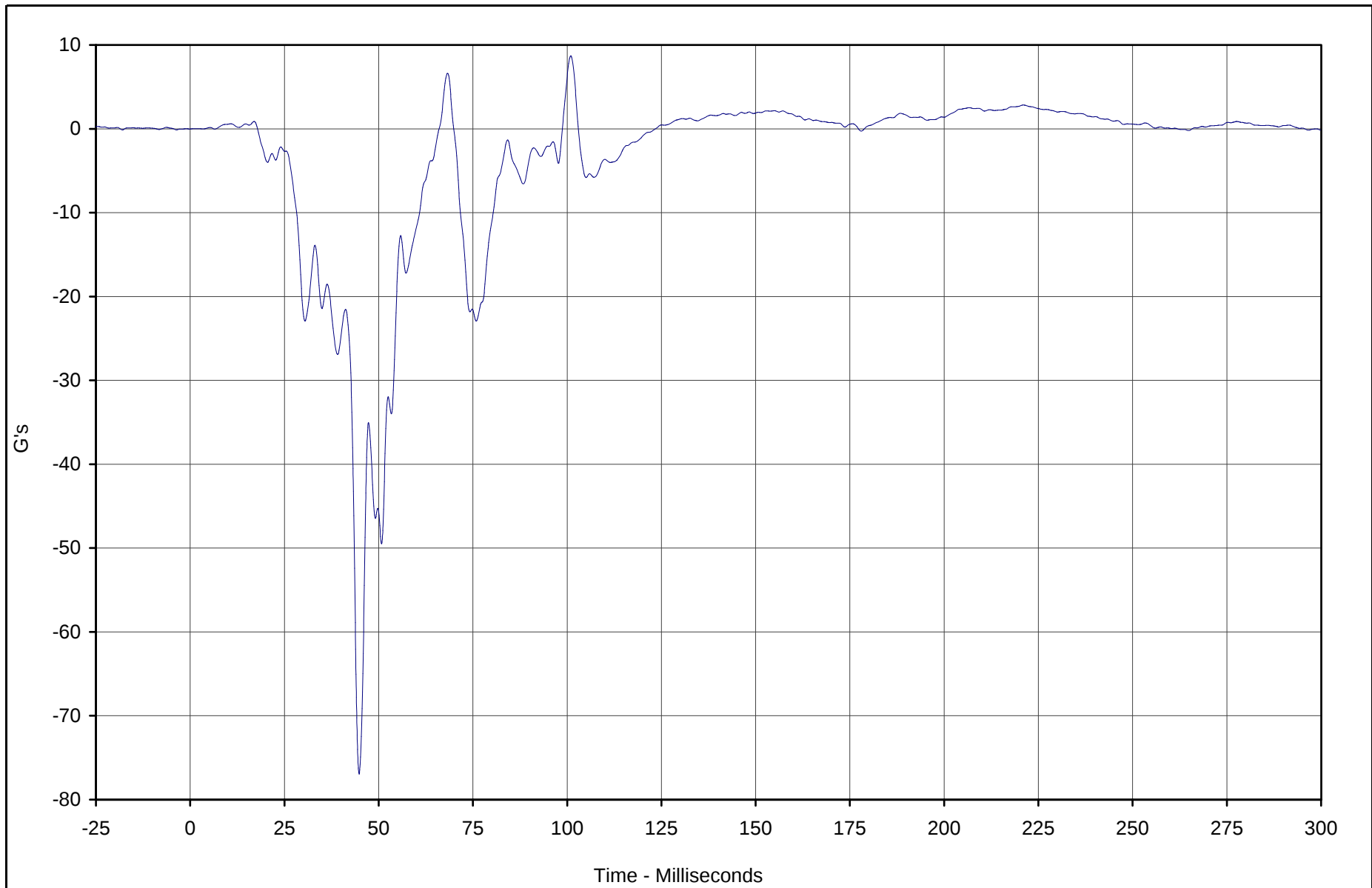


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Right Foot Aft Z	083	FIL	G's	8.7	101.0	-77.0	44.8	180

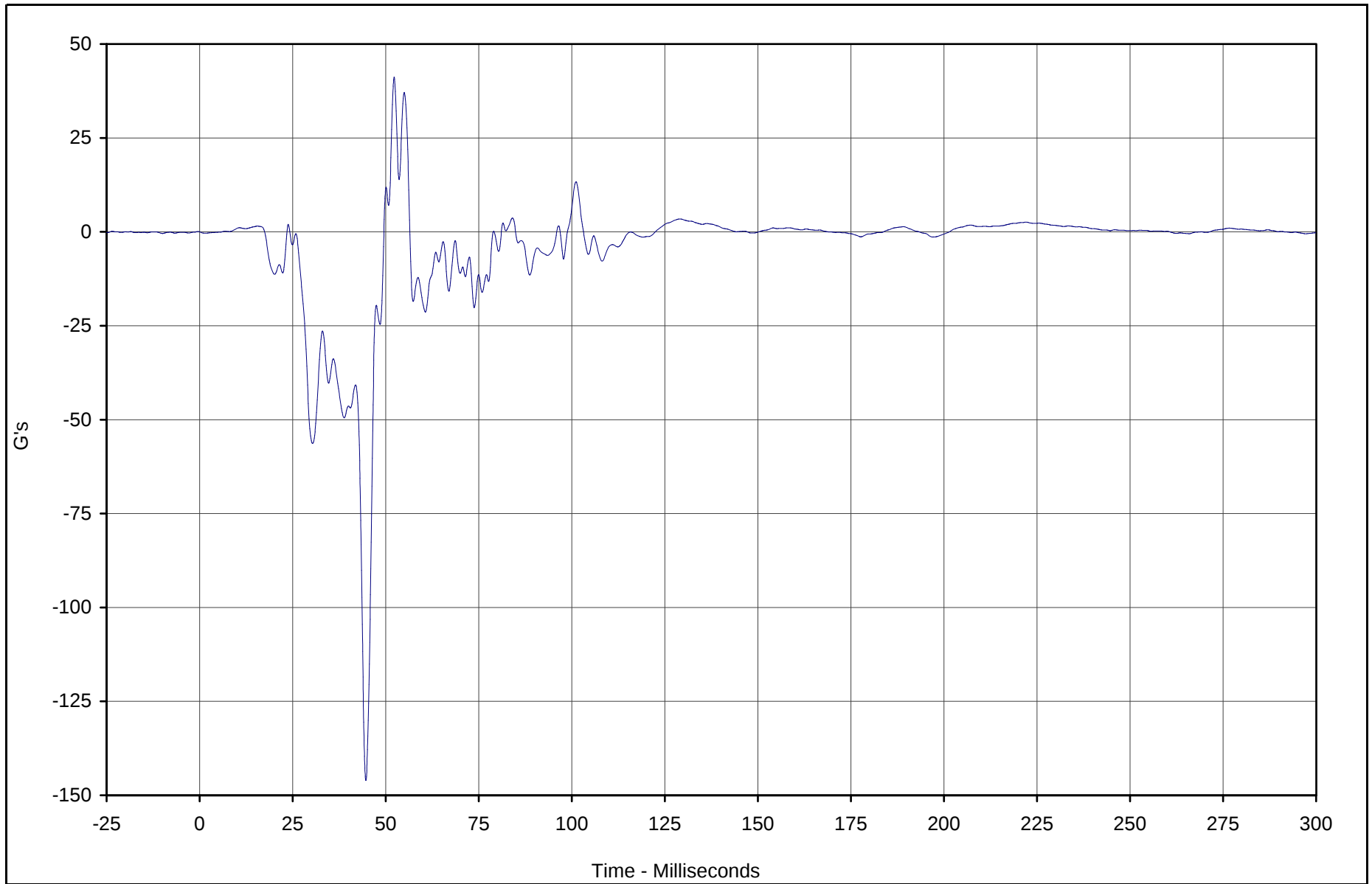


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Right Foot Fore Z	084	FIL	G's	41.2	52.3	-146.0	44.7	180

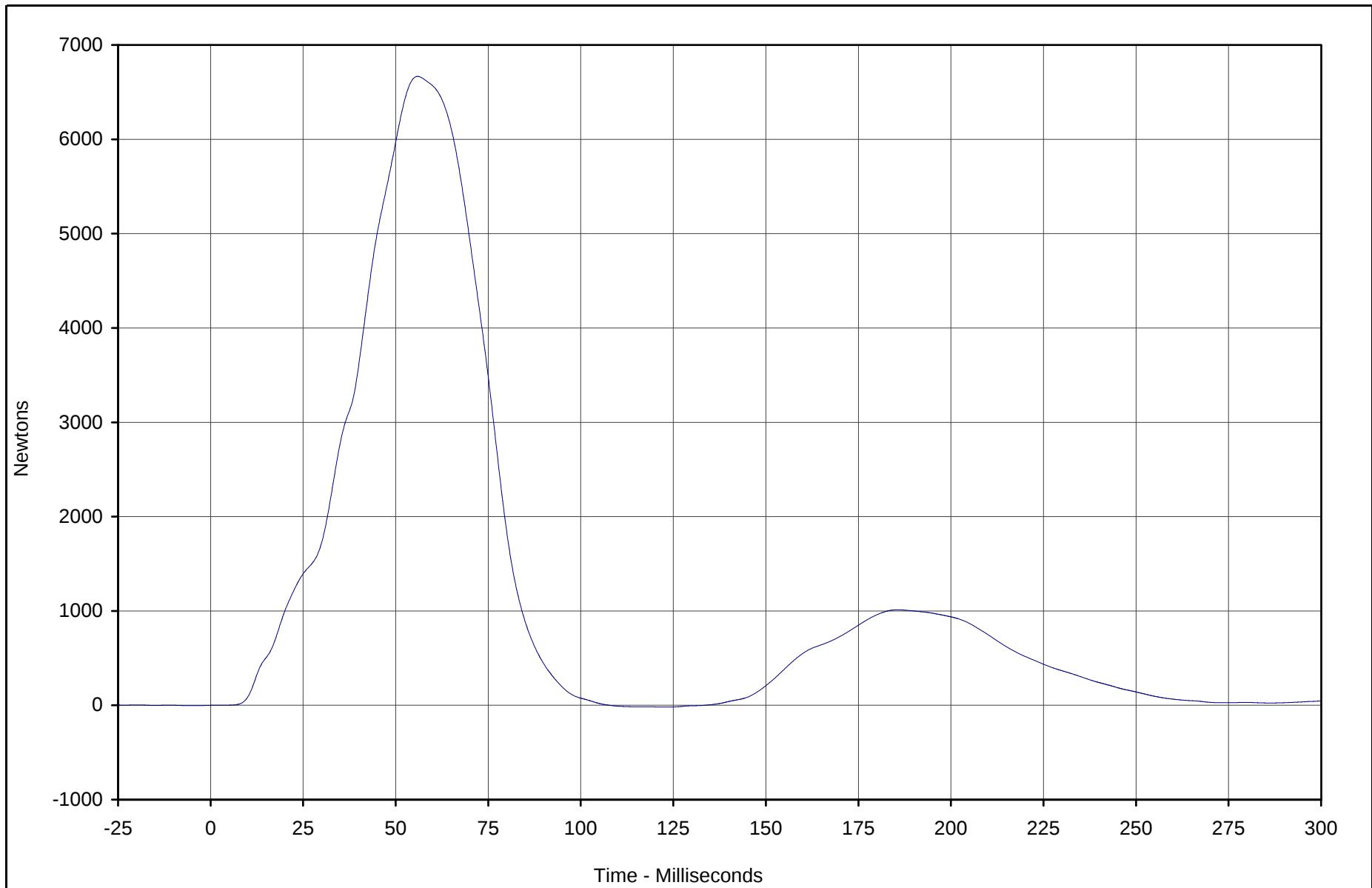


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Lap Belt Force	085	FIL	Newtons	6666.9	55.9	-18.4	123.4	60



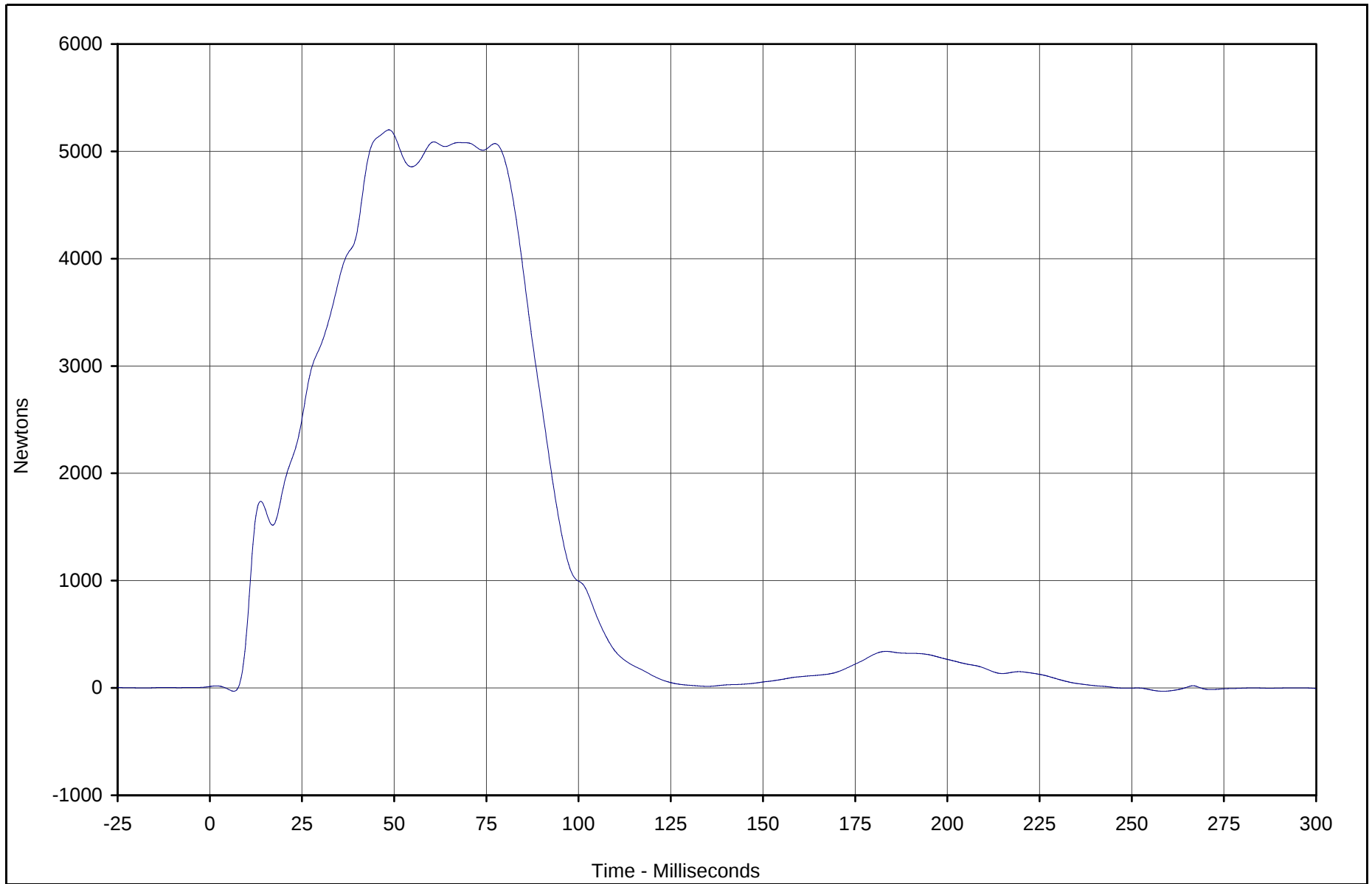
Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

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Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Shoulder Belt Force	086	FIL	Newtons	5200.4	48.6	-31.1	6.5	60



Test Vehicle: 2002 Mazda MPV LX Minivan

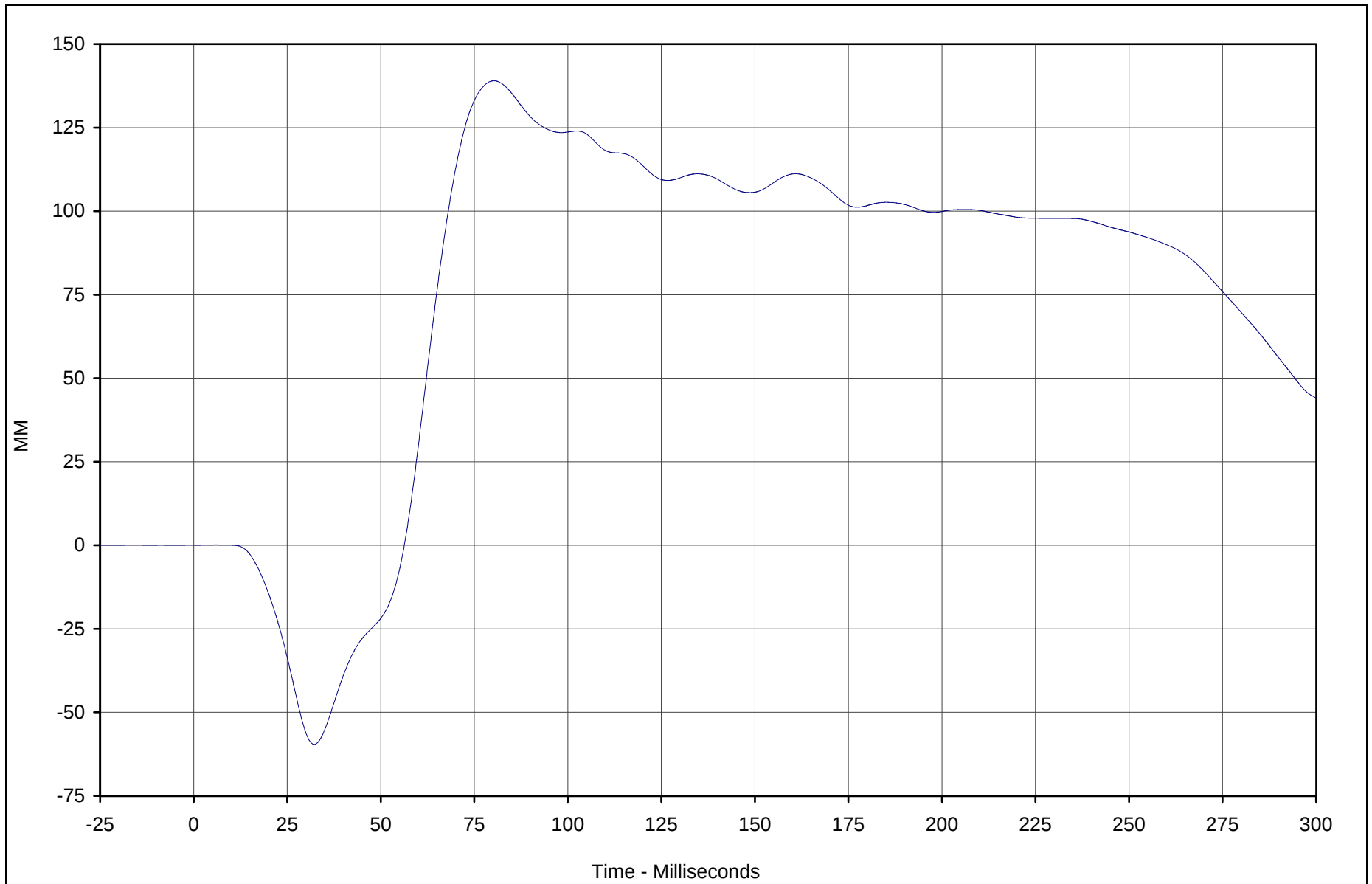
Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

KAR22001-08

B-121



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Shoulder Belt Pullout	087	FIL	MM	139.0	80.3	-59.6	32.2	60



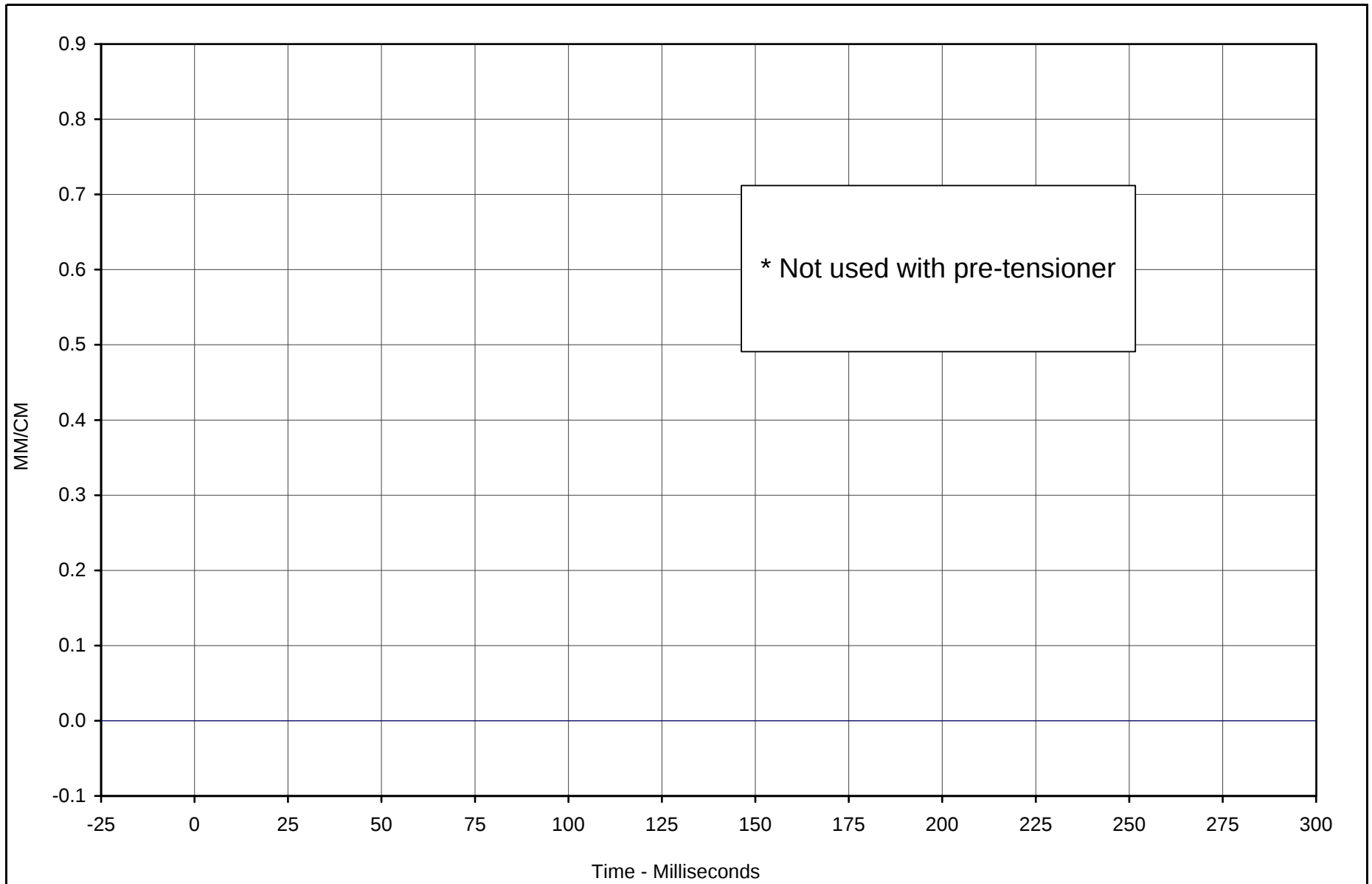
Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

KAR22001-08



* Not used with pre-tensioner

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Shoulder Belt Elongation	088	FIL	MM/CM	0.00	0.0	0.00	0.0	60

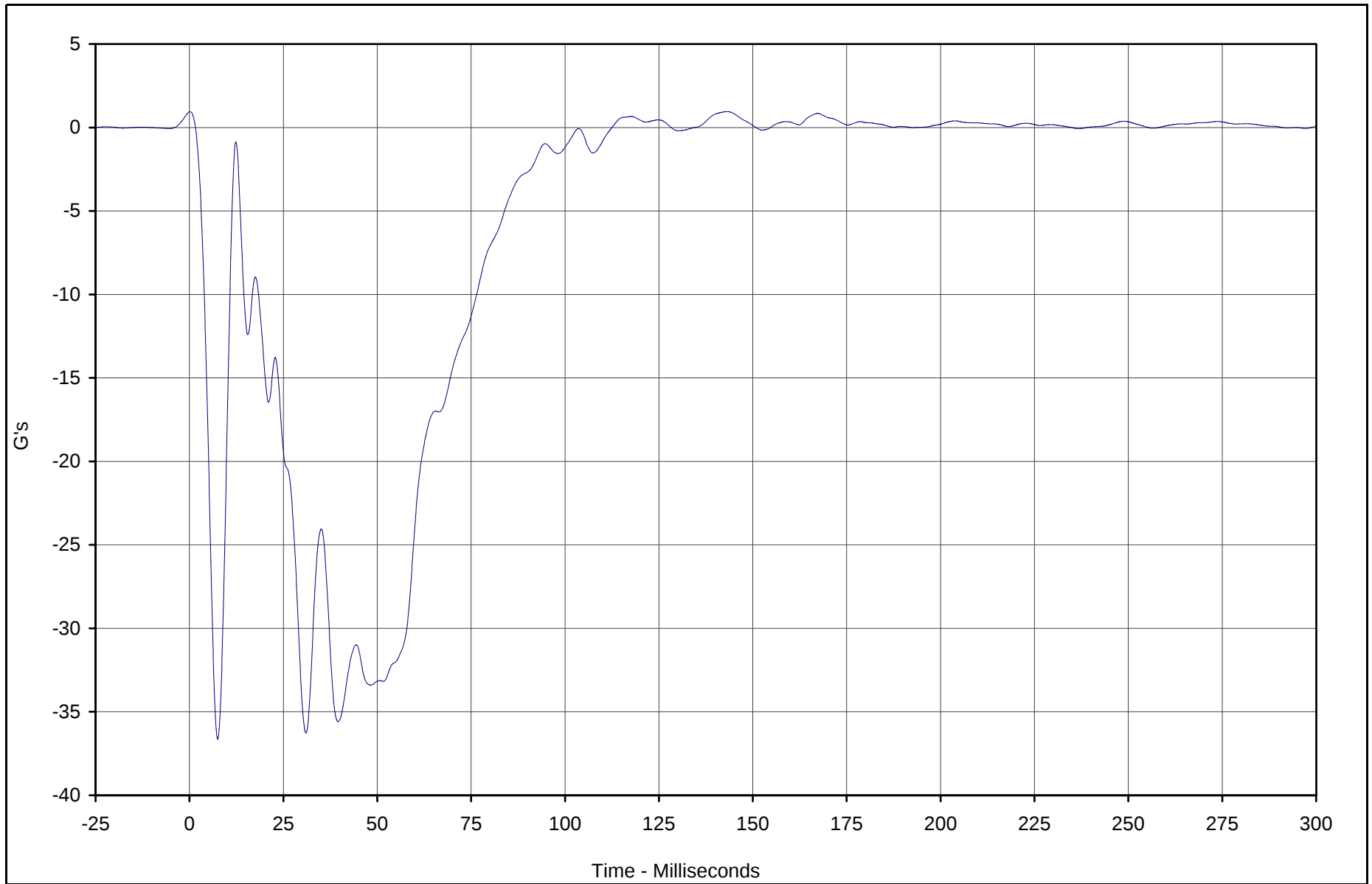


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Left Rear X	089	FIL	G's	1.0	143.1	-36.7	7.5	60



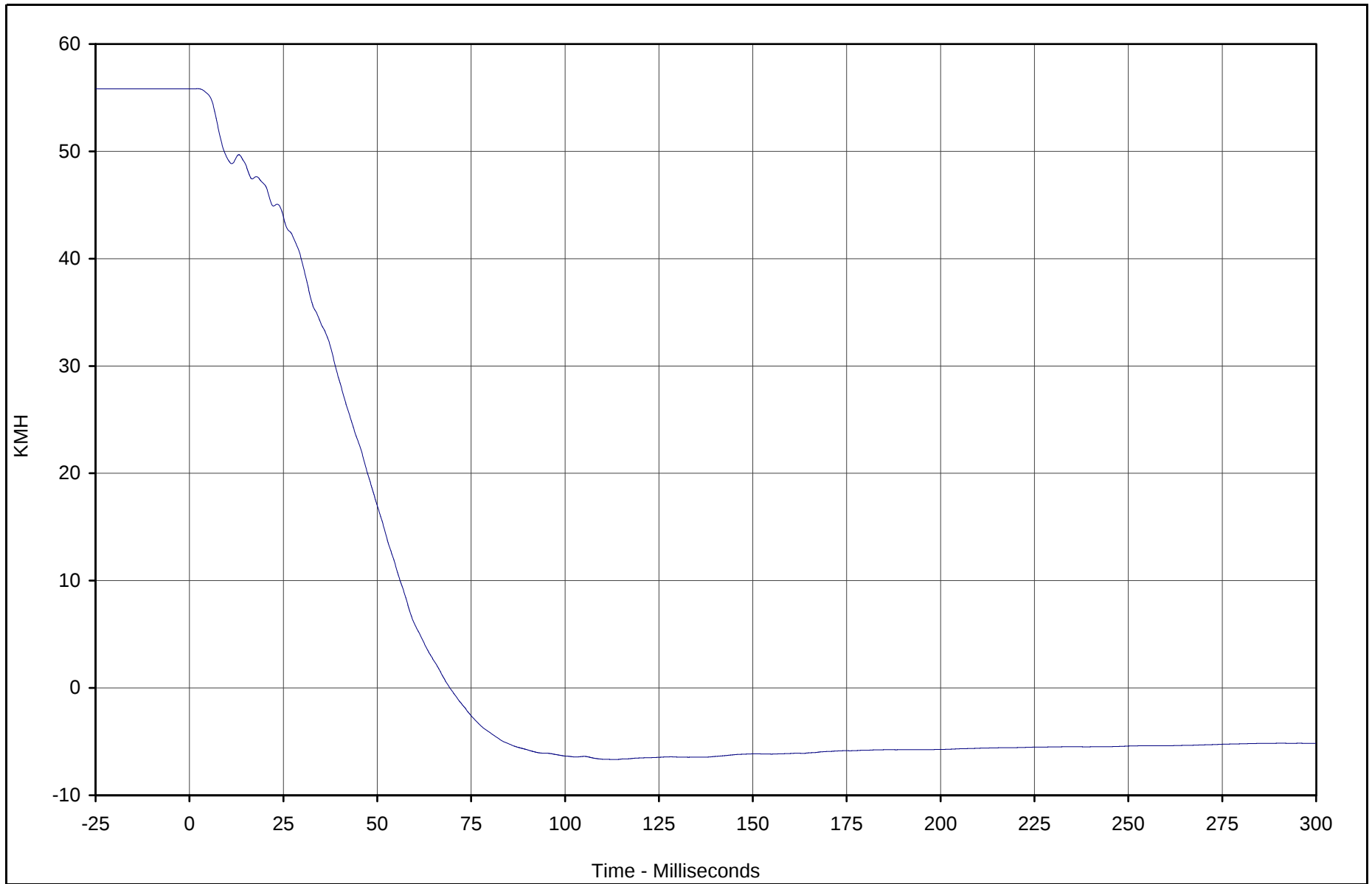
Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

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Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Left Rear X Velocity	089	IN1	KMH	55.8	2.2	-6.7	113.4	180



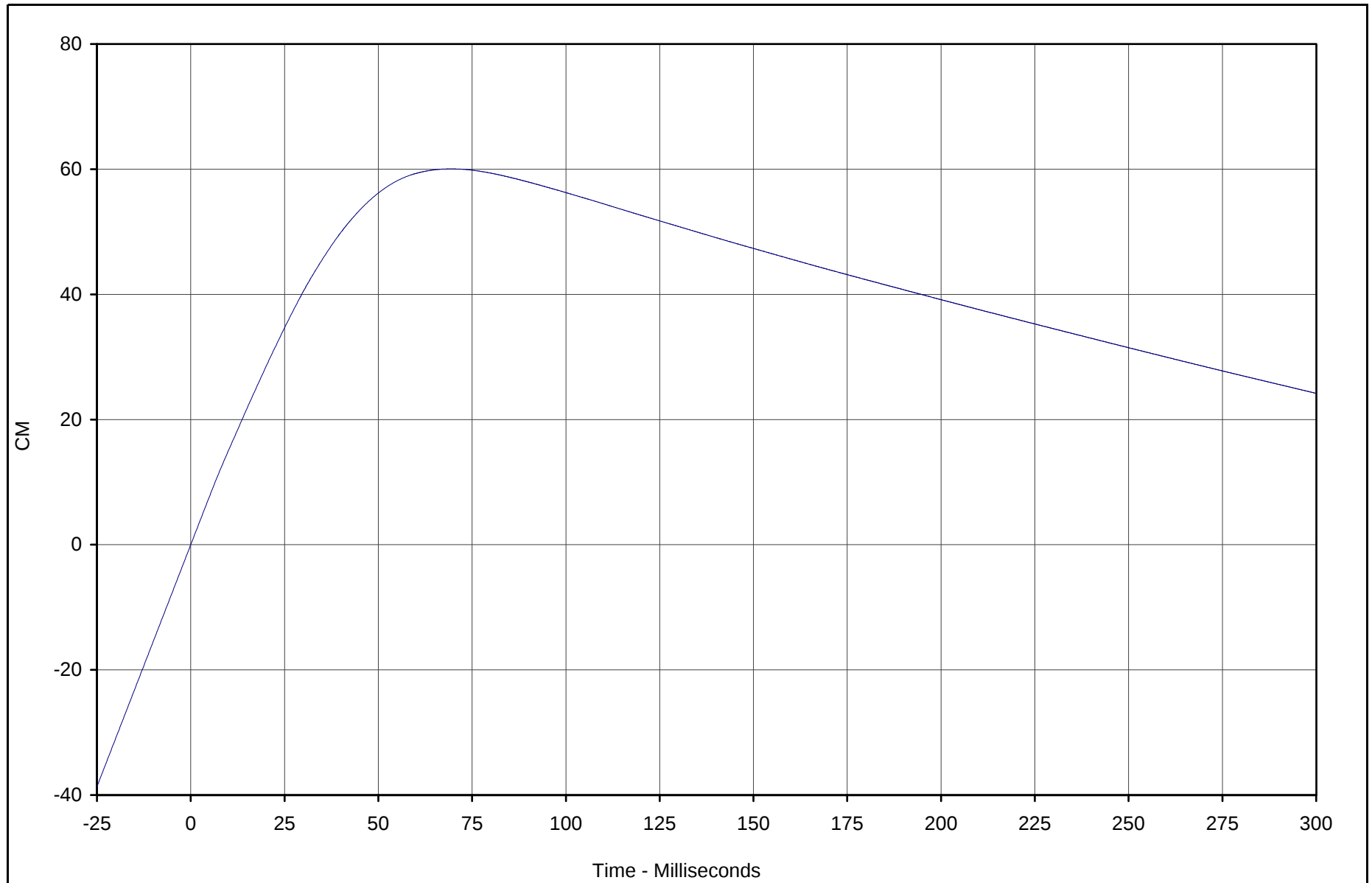
Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

KAR22001-08



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Left Rear X Displ.	089	IN2	CM	60.1	69.3	0.0	0.0	180

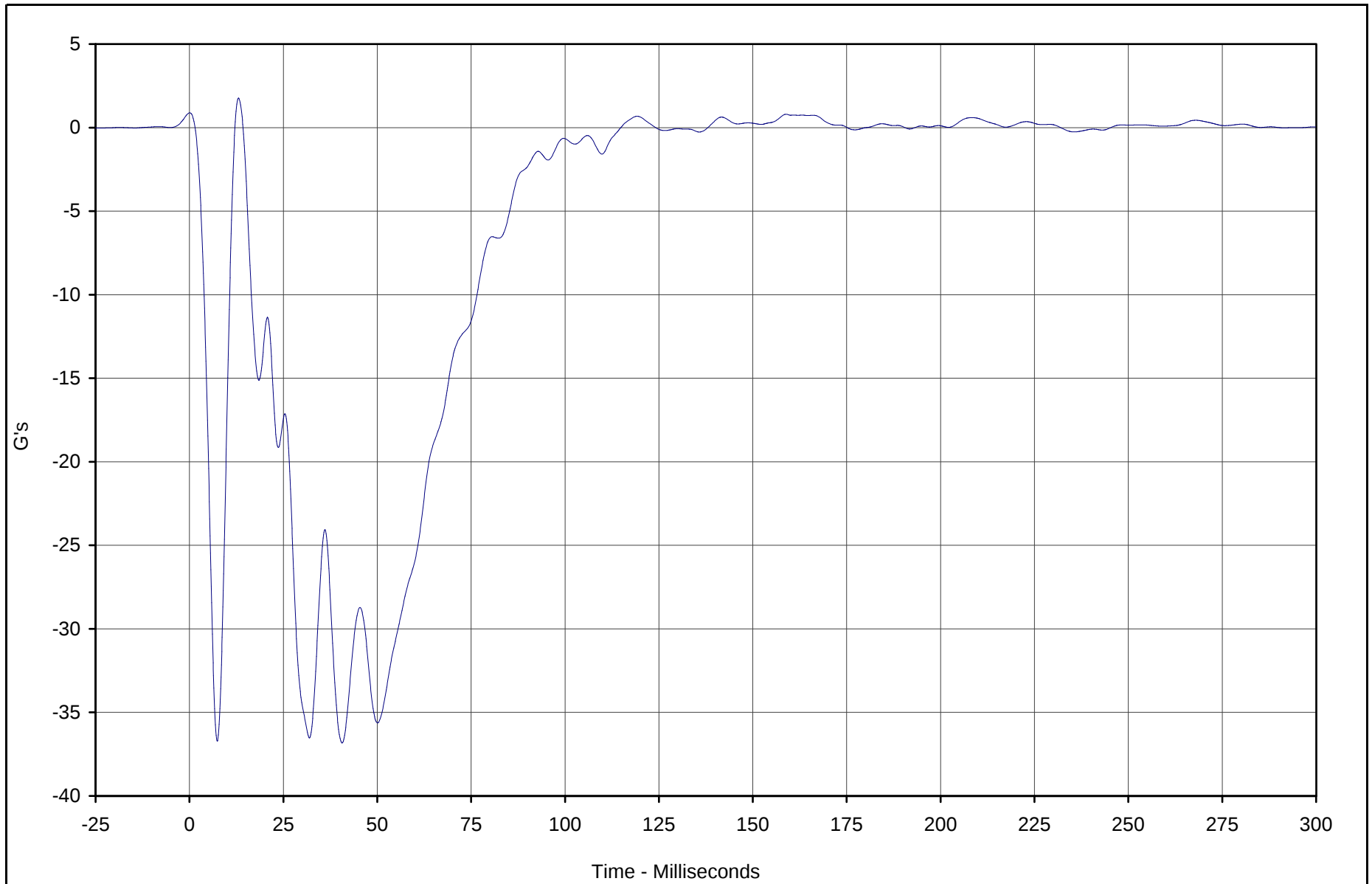


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Right Rear X	090	FIL	G's	1.8	13.1	-36.8	40.7	60



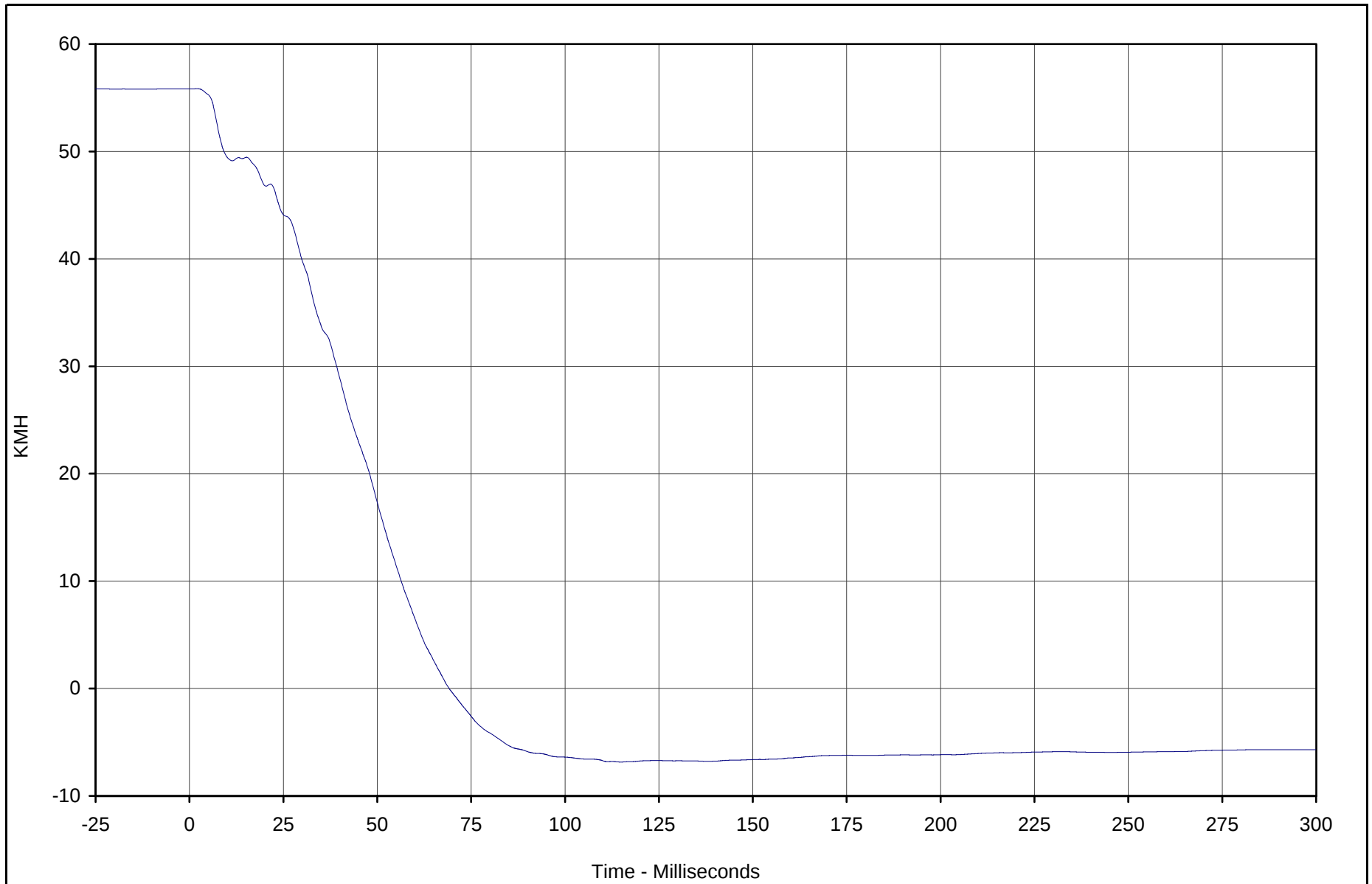
Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

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Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Right Rear X Velocity	090	IN1	KMH	55.8	2.1	-6.8	114.9	180



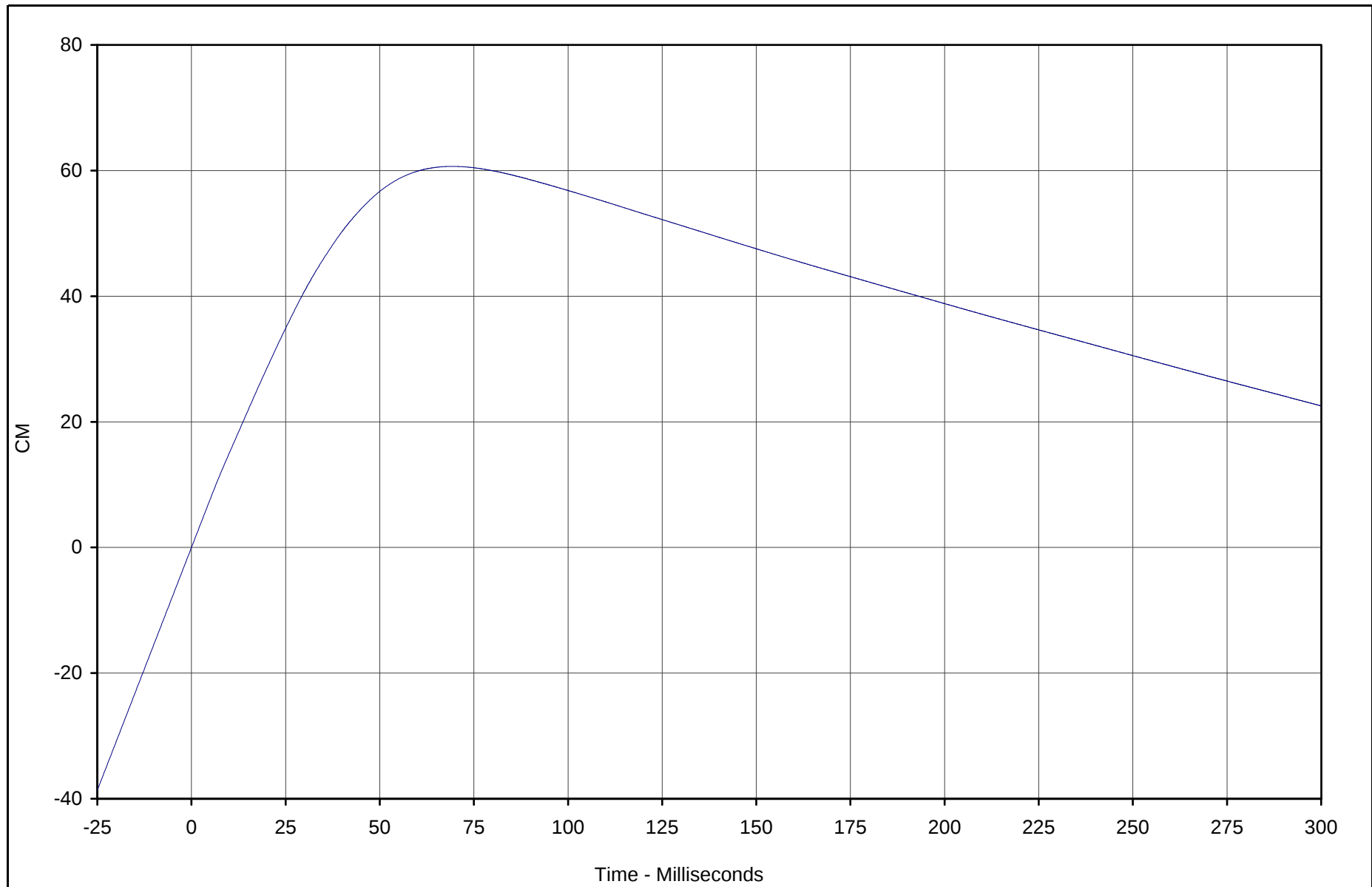
Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

KAR22001-08



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Right Rear X Displ.	090	IN2	CM	60.7	69.1	0.0	0.0	180

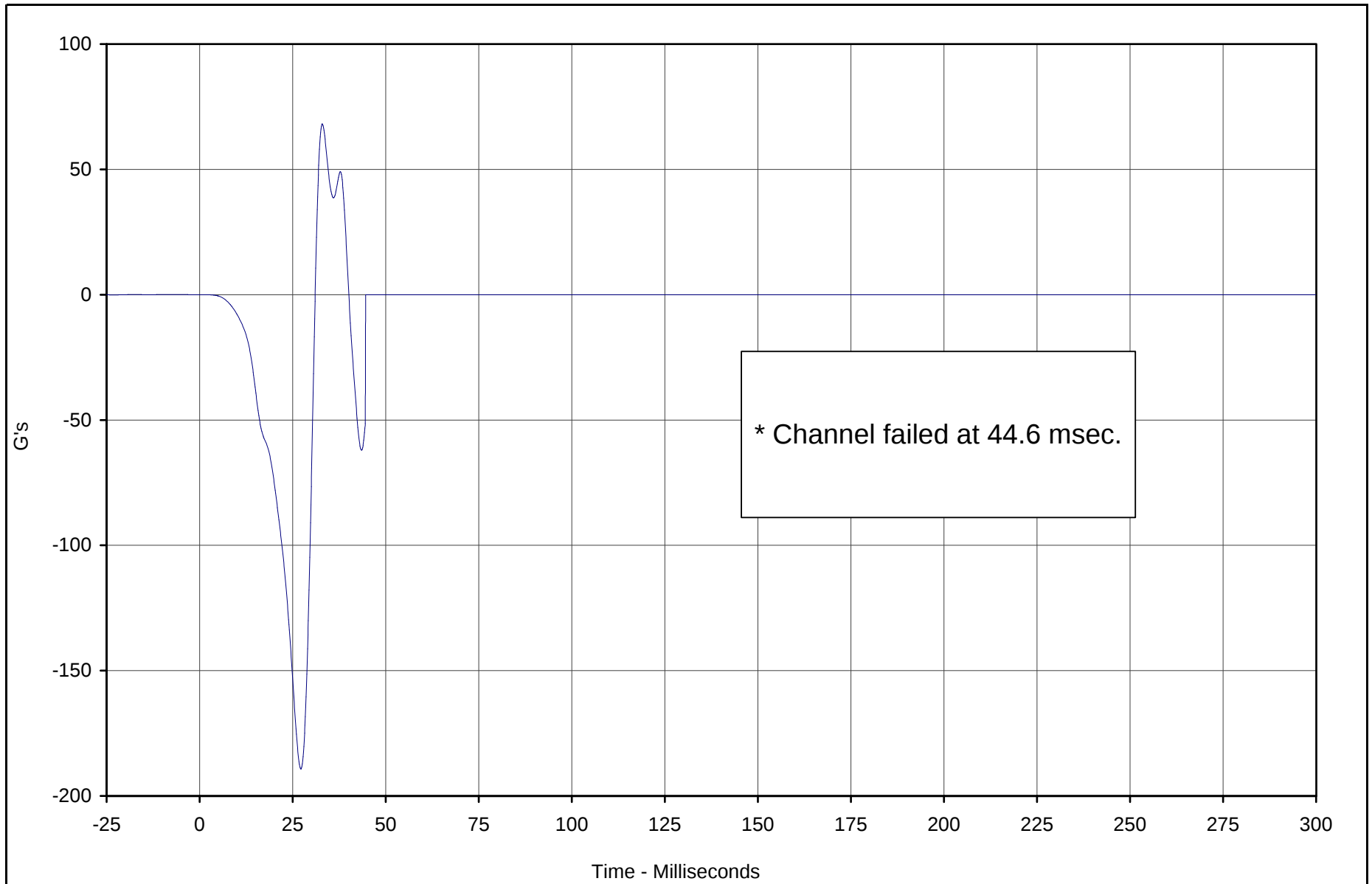


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



* Channel failed at 44.6 msec.

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Engine Top	091	FIL	G's	68.1	33.0	-189.3	27.2	60

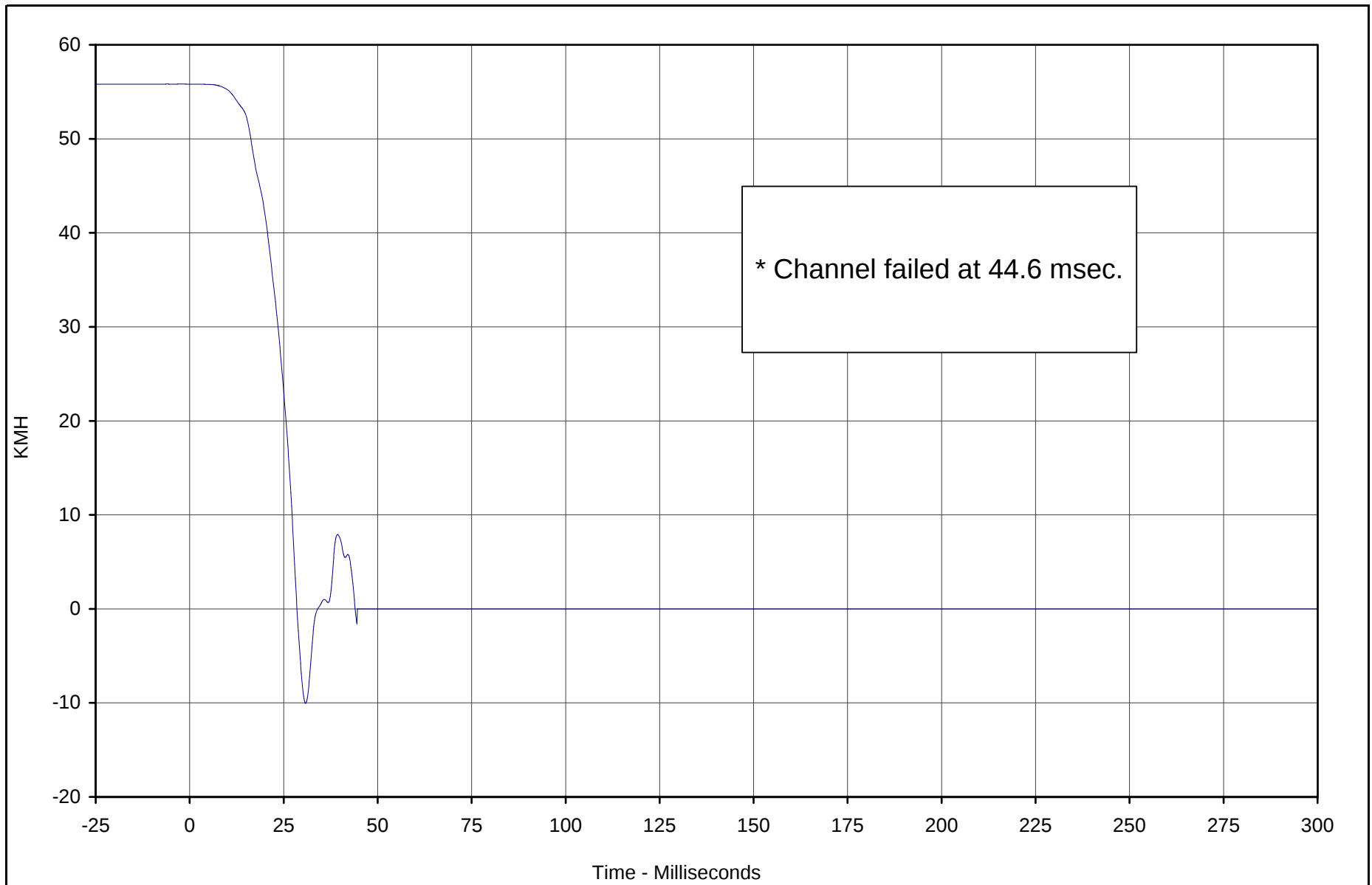


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



* Channel failed at 44.6 msec.

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Engine Top Velocity	091	IN1	KMH	55.8	2.0	-10.1	30.8	180

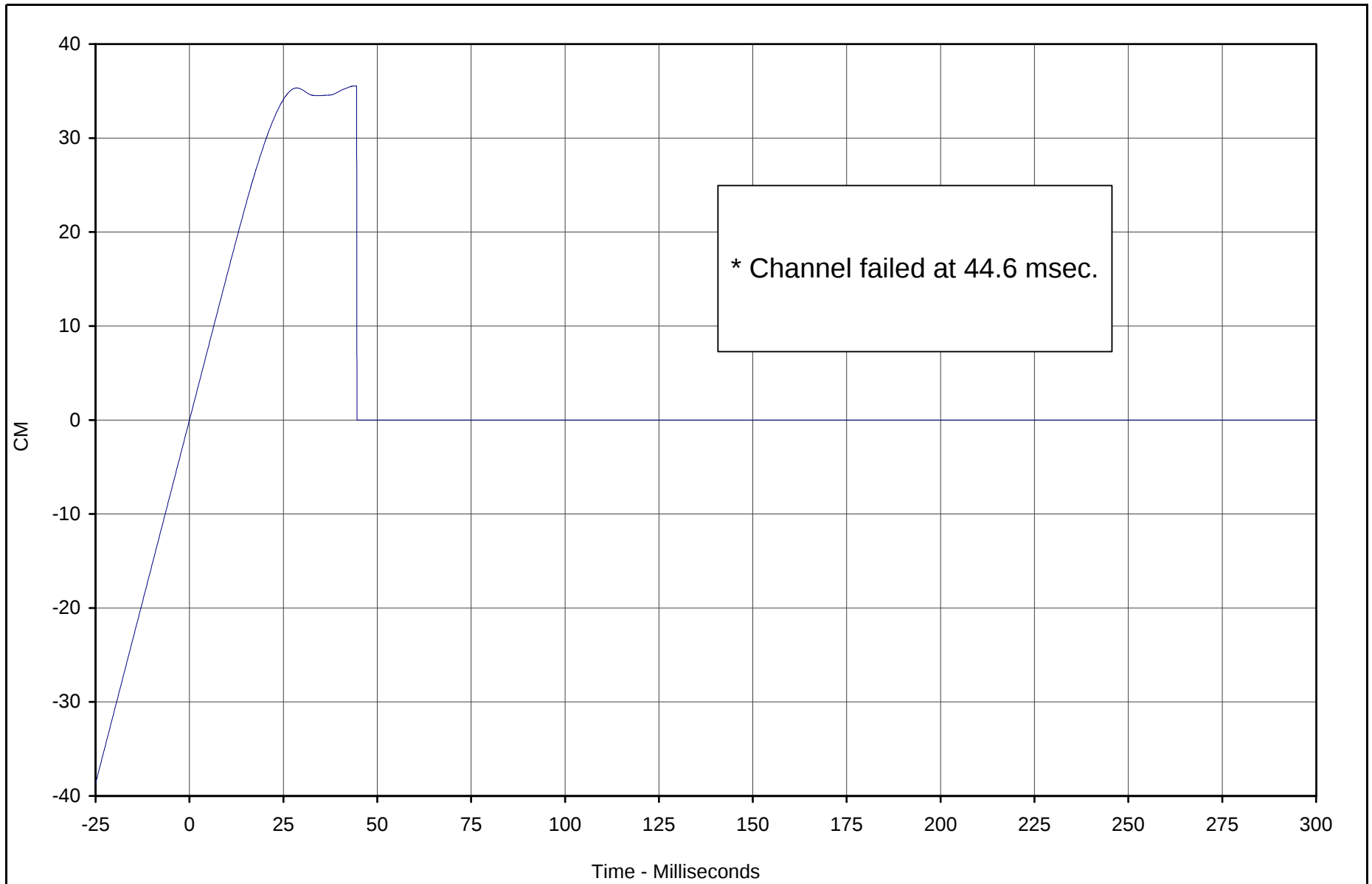


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



* Channel failed at 44.6 msec.

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Engine Top Displacement	091	IN2	CM	35.5	44.0	0.0	44.6	180



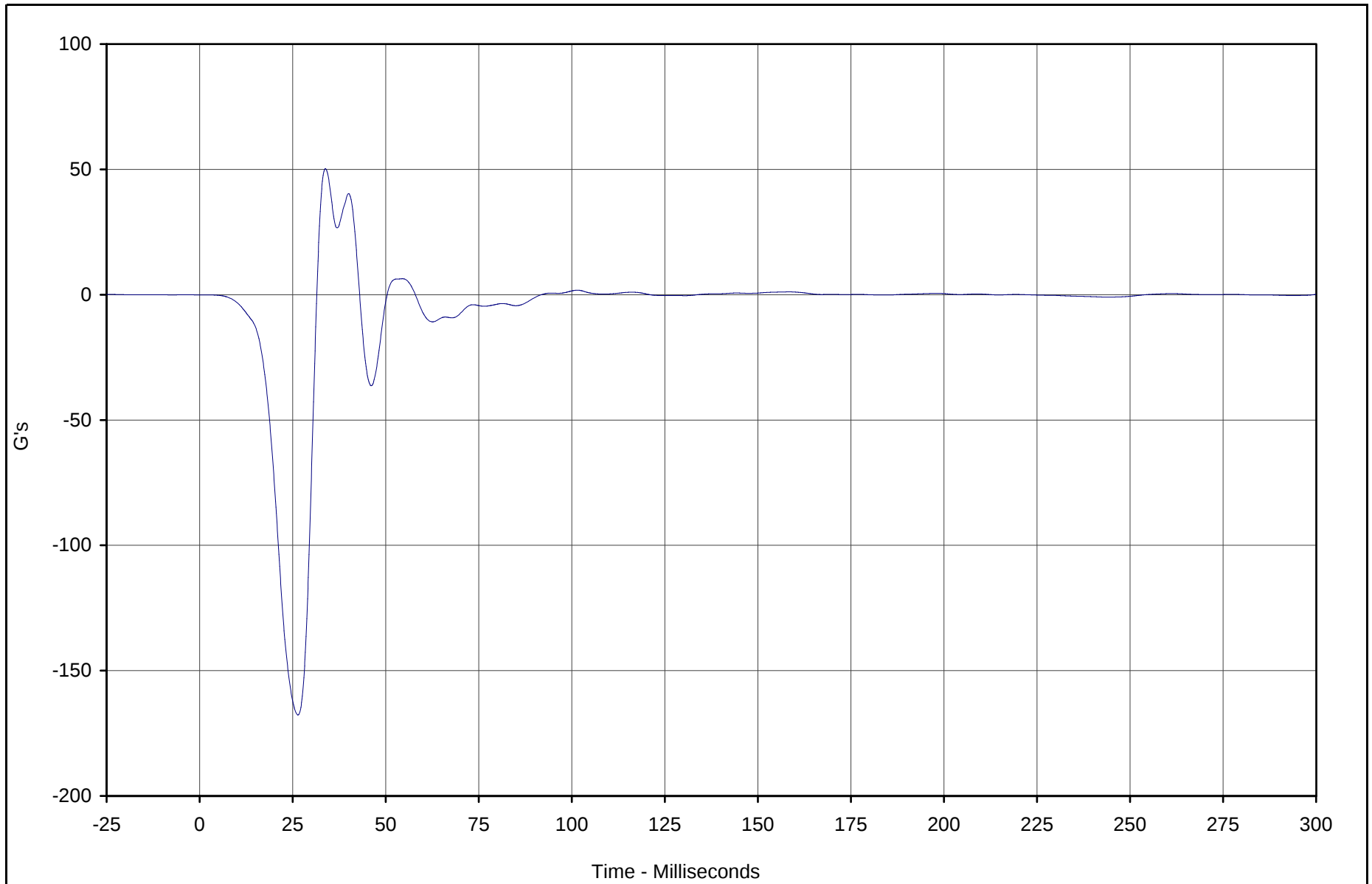
Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

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Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Engine Bottom	092	FIL	G's	50.3	33.8	-167.7	26.4	60



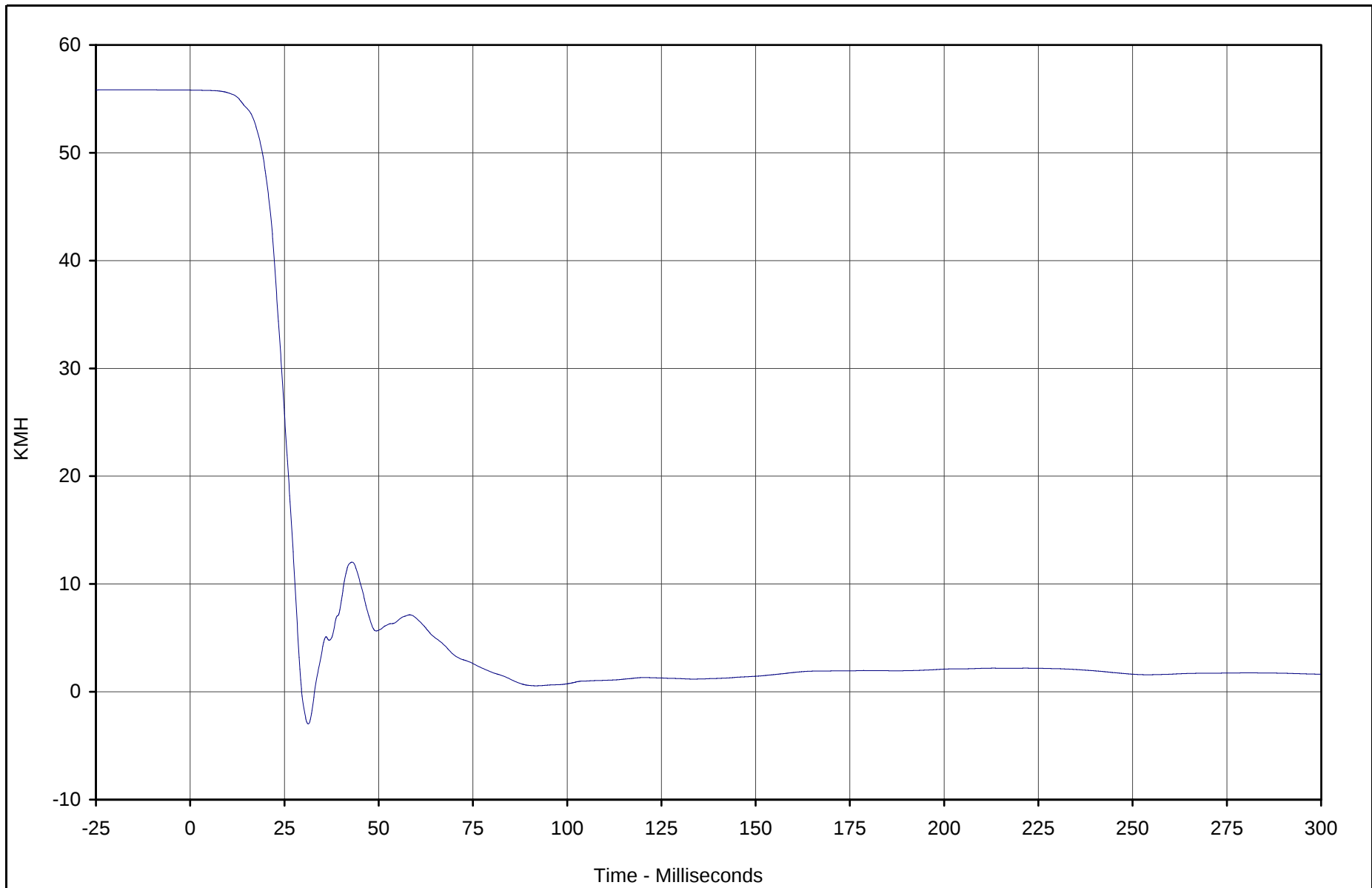
Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

KAR22001-08



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Engine Bottom Velocity	092	IN1	KMH	55.8	0.0	-3.0	31.3	180



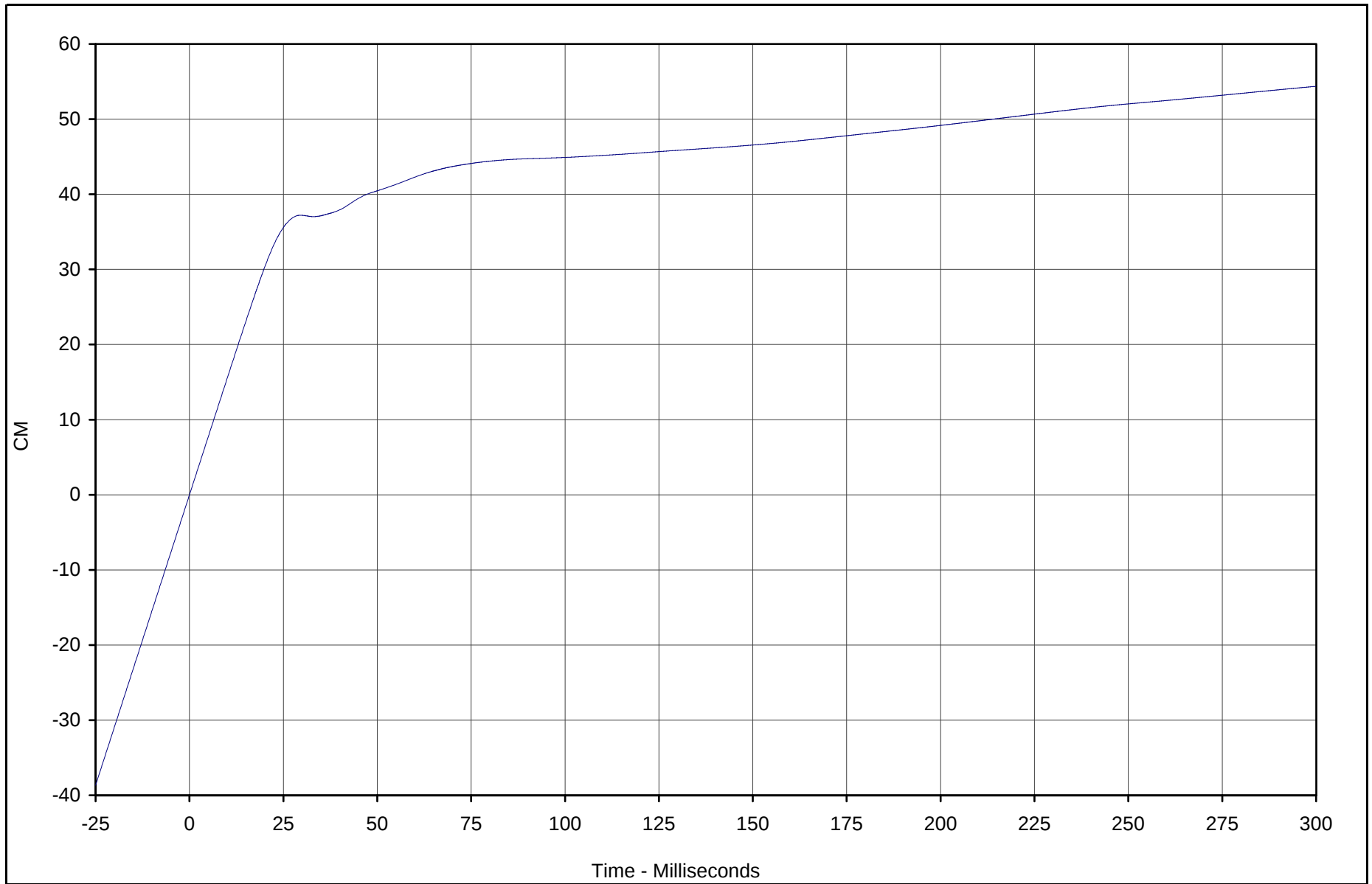
Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

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Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Engine Bottom Displacement	092	IN2	CM	54.4	299.9	0.0	0.0	180



Test Vehicle: 2002 Mazda MPV LX Minivan

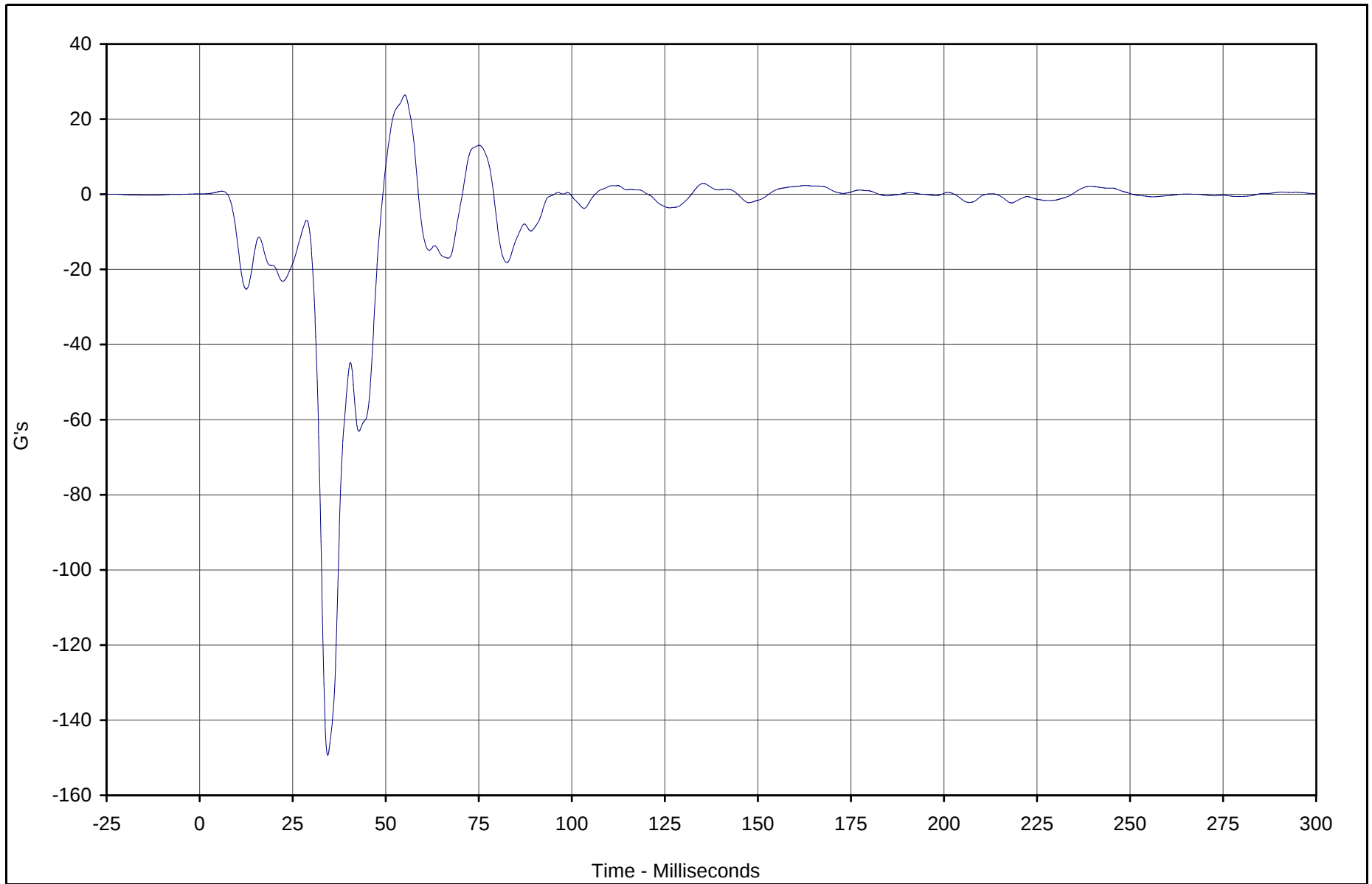
Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

KAR22001-08

B-135



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Left Brake Caliper	093	FIL	G's	26.5	55.1	-149.3	34.4	60



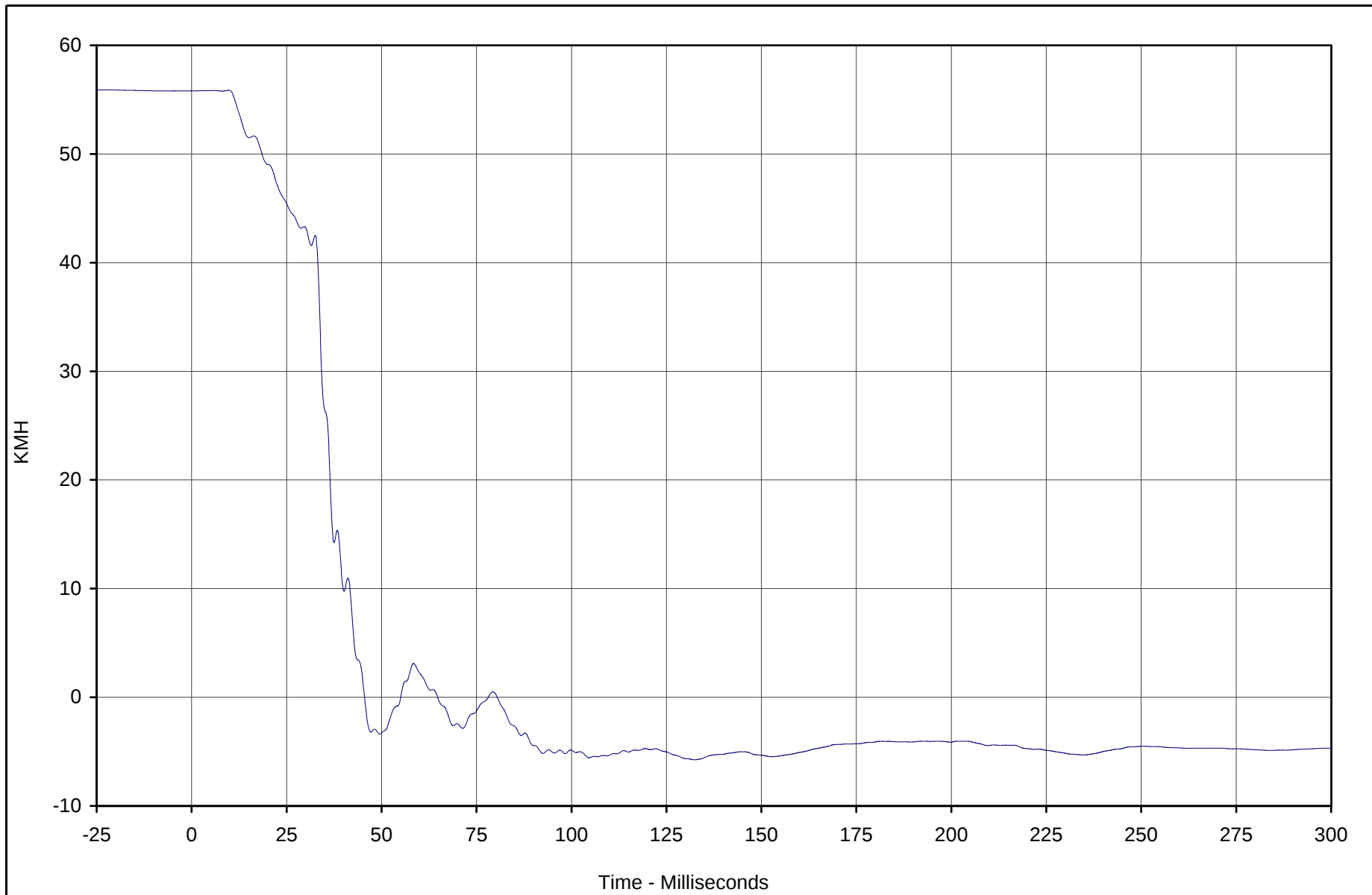
Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

KAR22001-08



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Left Brake Caliper Velocity	093	IN1	KMH	55.9	9.8	-5.8	132.4	180



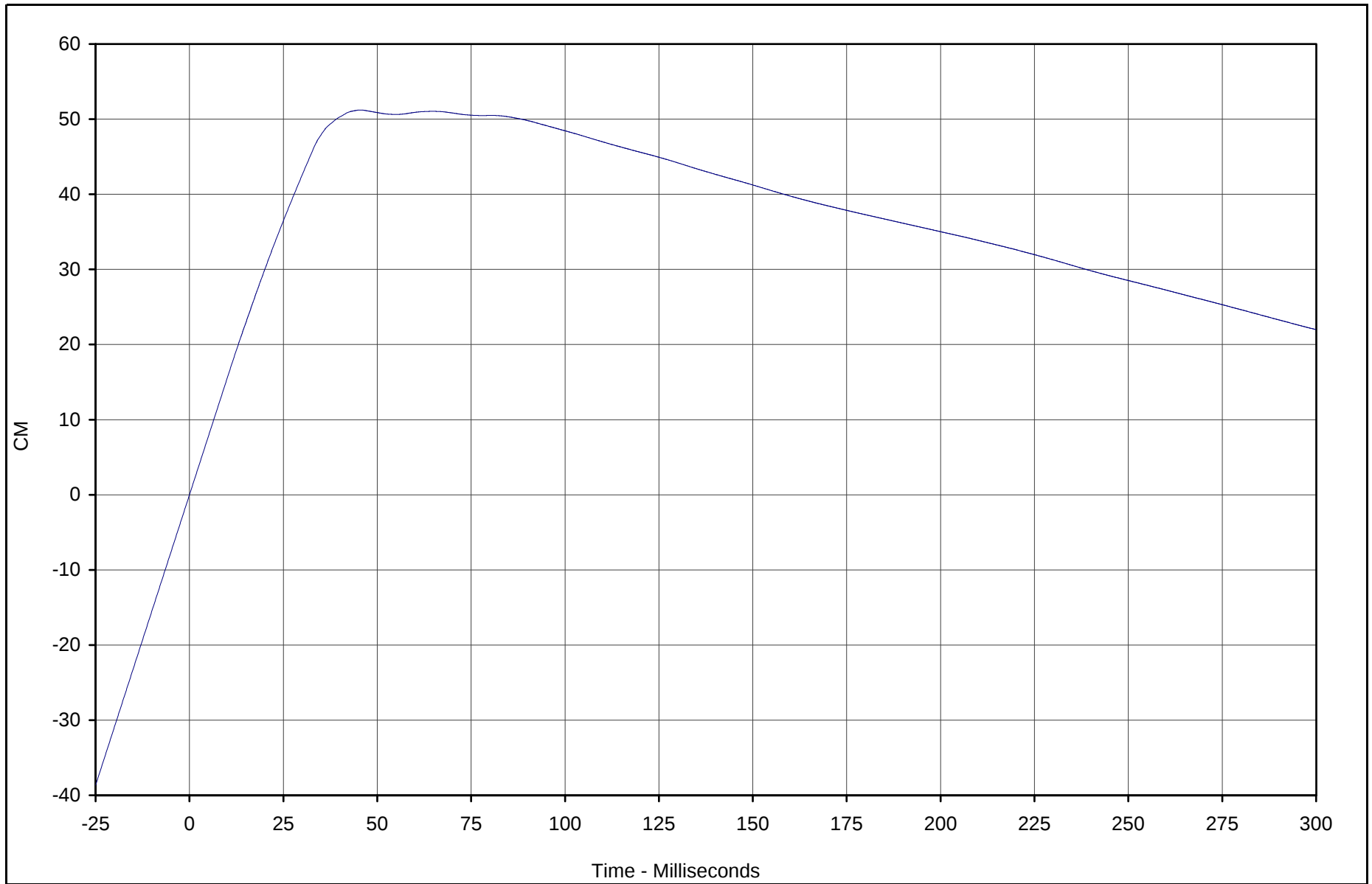
Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

B-137



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Left Brake Caliper Displ.	093	IN2	CM	51.2	45.5	0.0	0.0	180



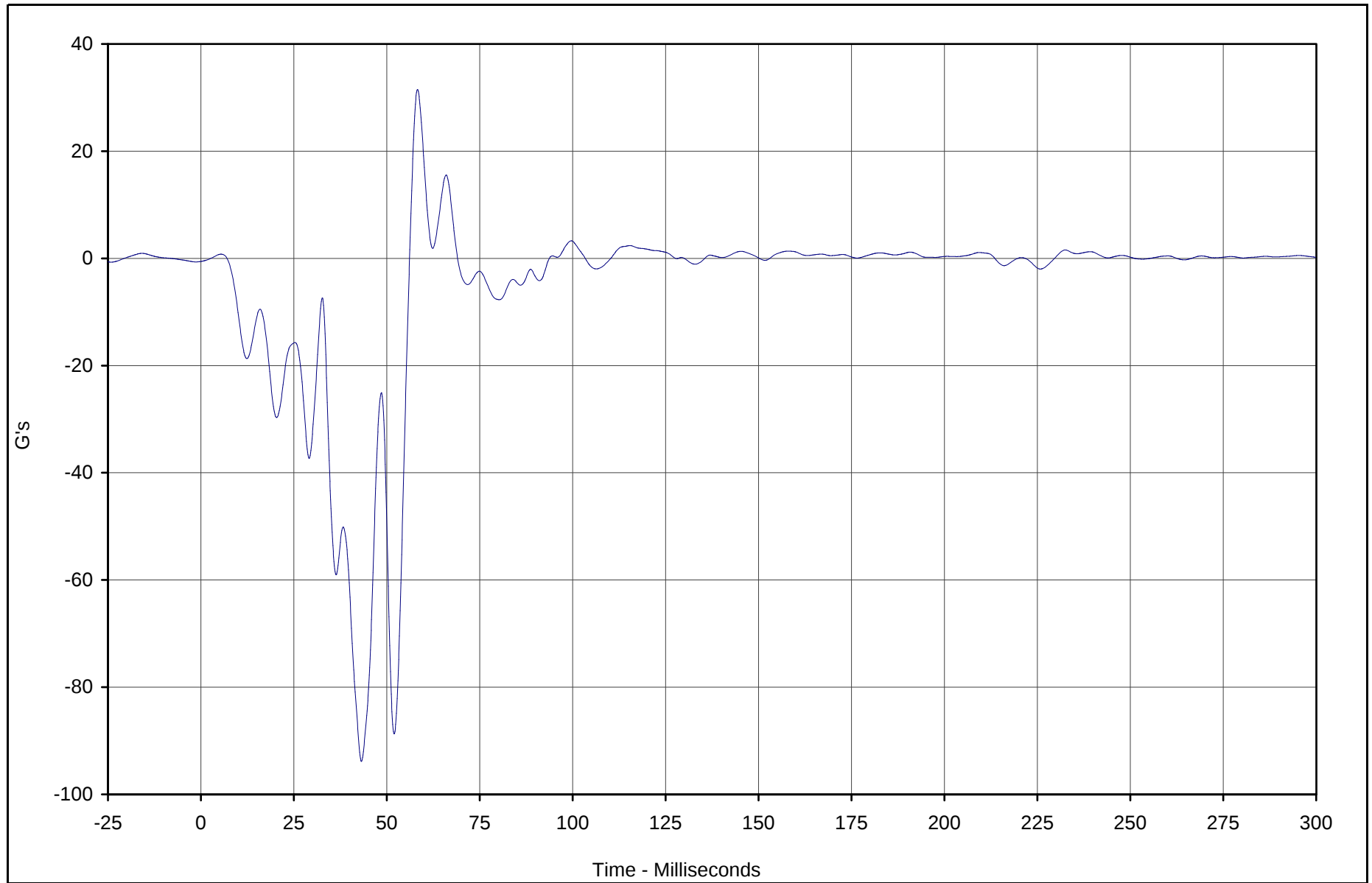
Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

KAR22001-08



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Right Brake Caliper	094	FIL	G's	31.5	58.3	-93.9	43.2	60

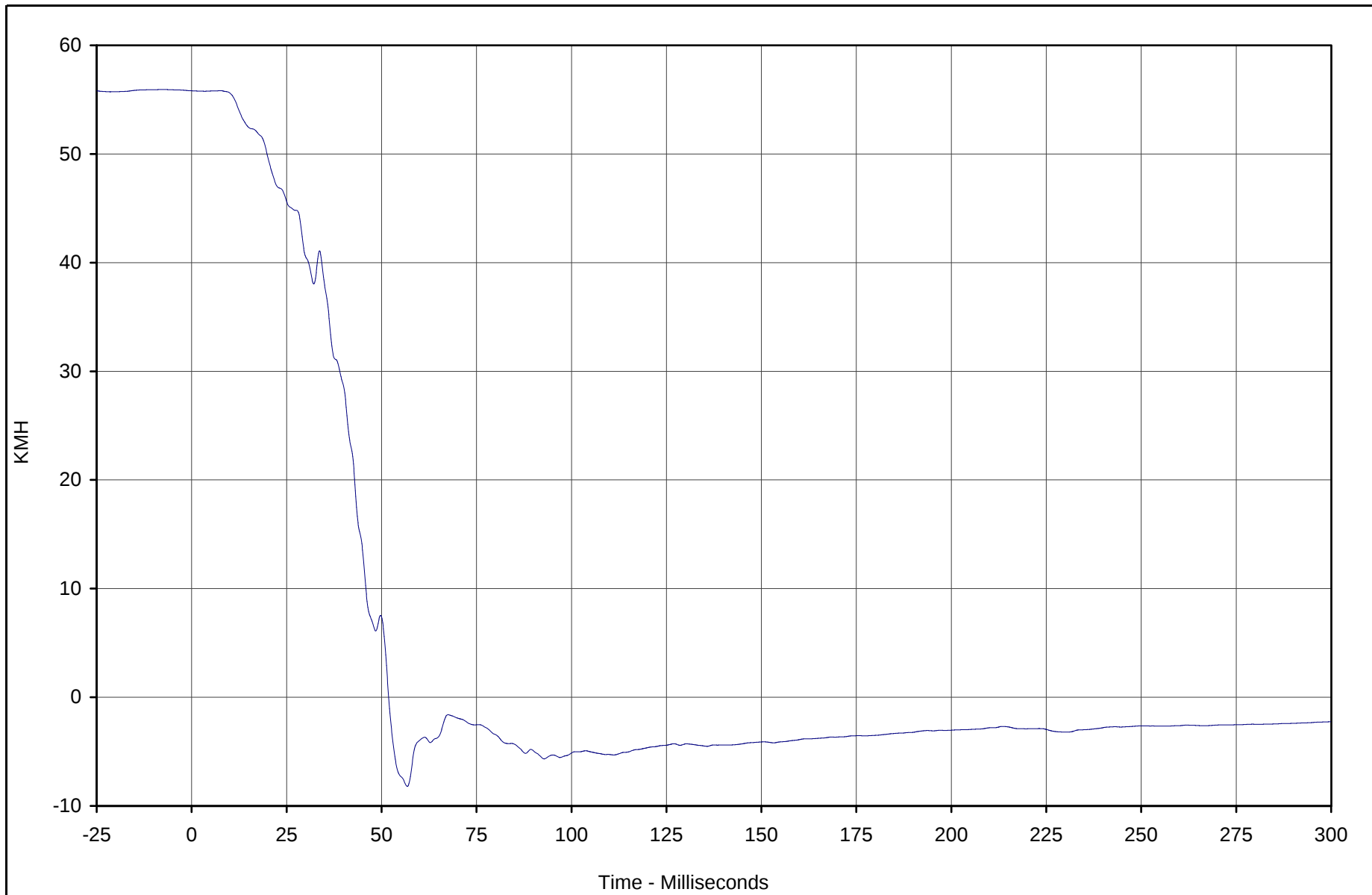


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Right Brake Caliper Velocity	094	IN1	KMH	55.8	7.5	-8.2	56.8	180



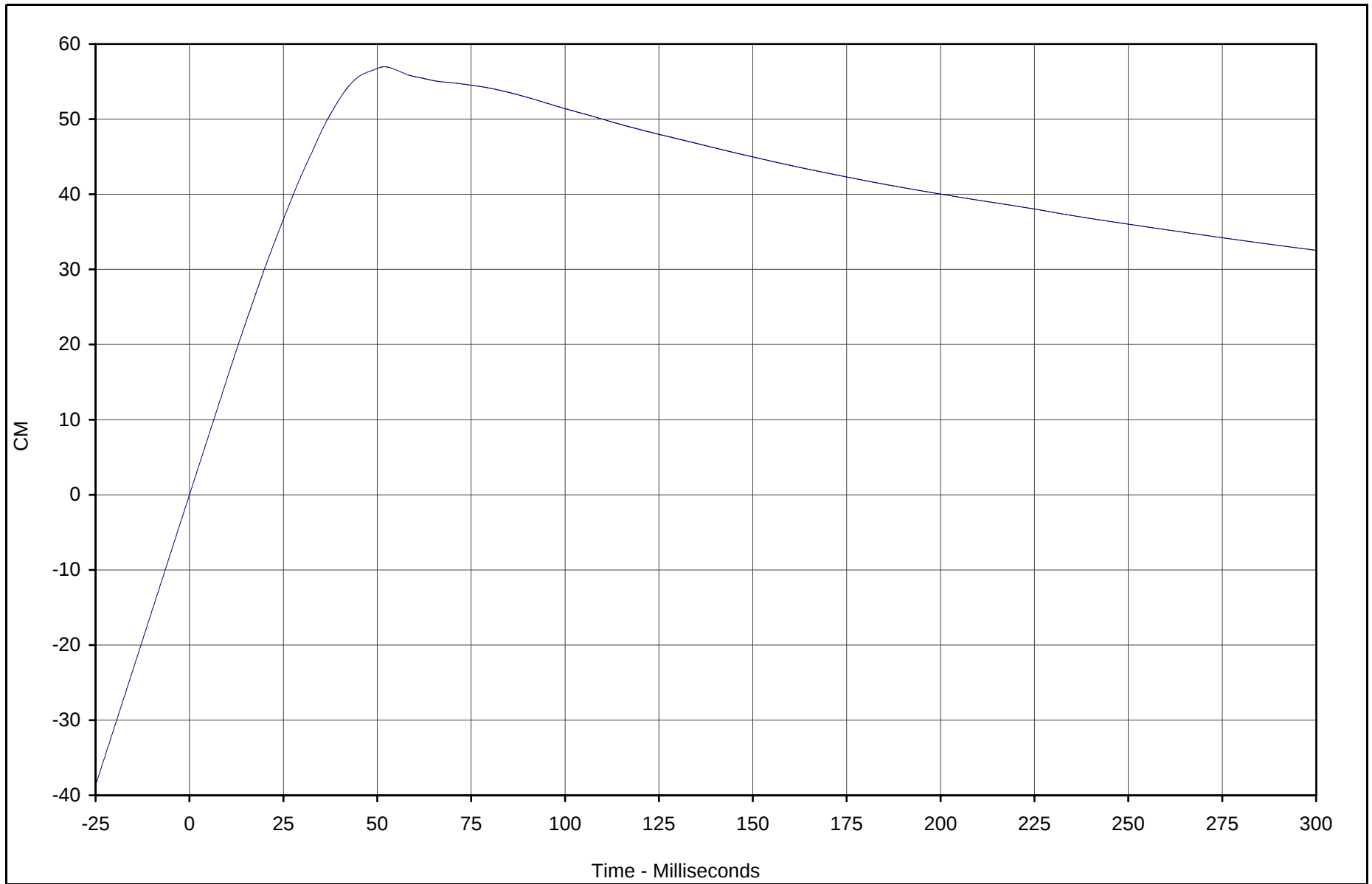
Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

B-140



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Right Brake Caliper Displ.	094	IN2	CM	57.0	51.9	0.0	0.0	180



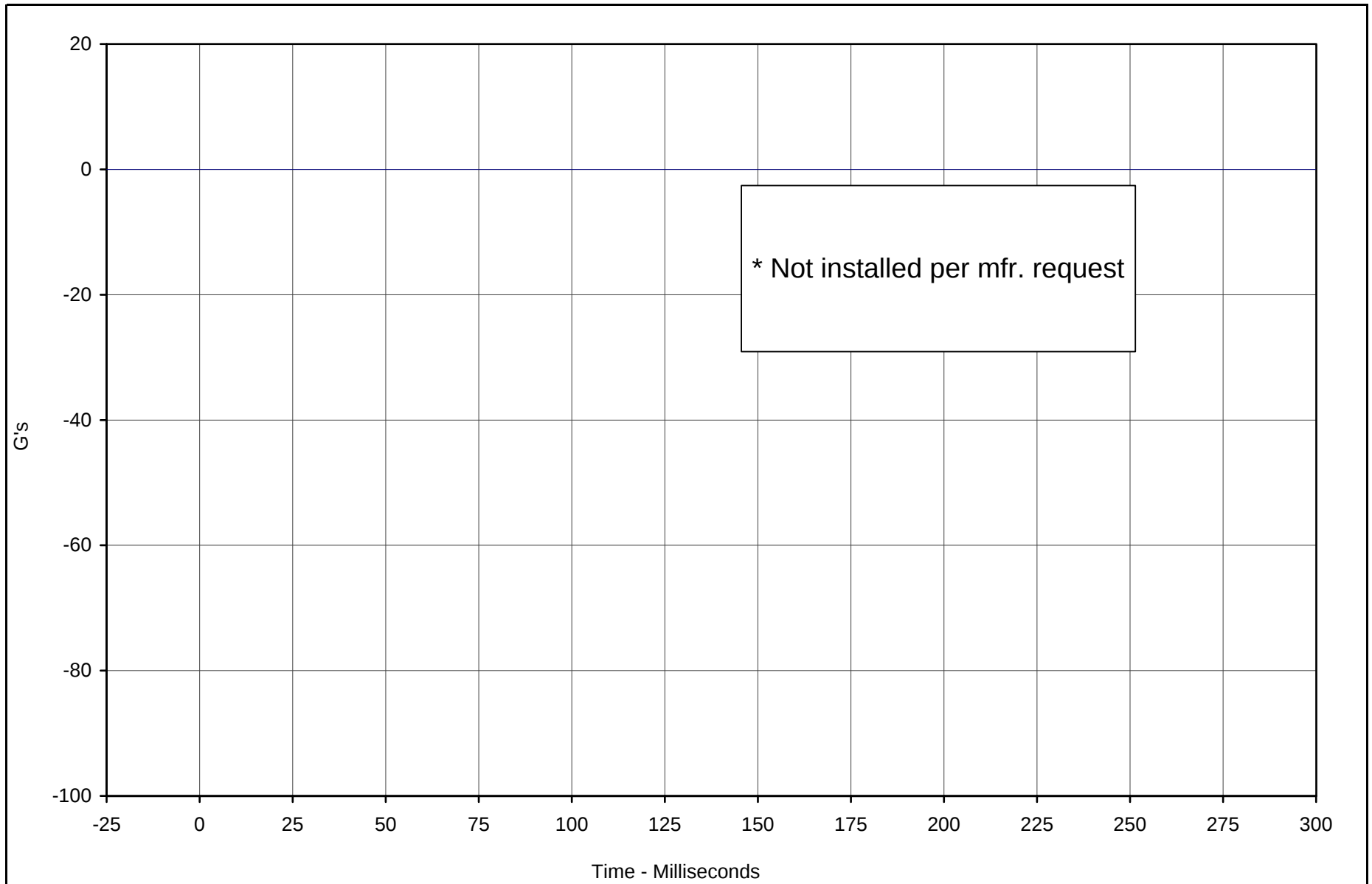
Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

KAR22001-08



* Not installed per mfr. request

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Instrument Panel	095	FIL	G's	0.0	0.0	0.0	0.0	60

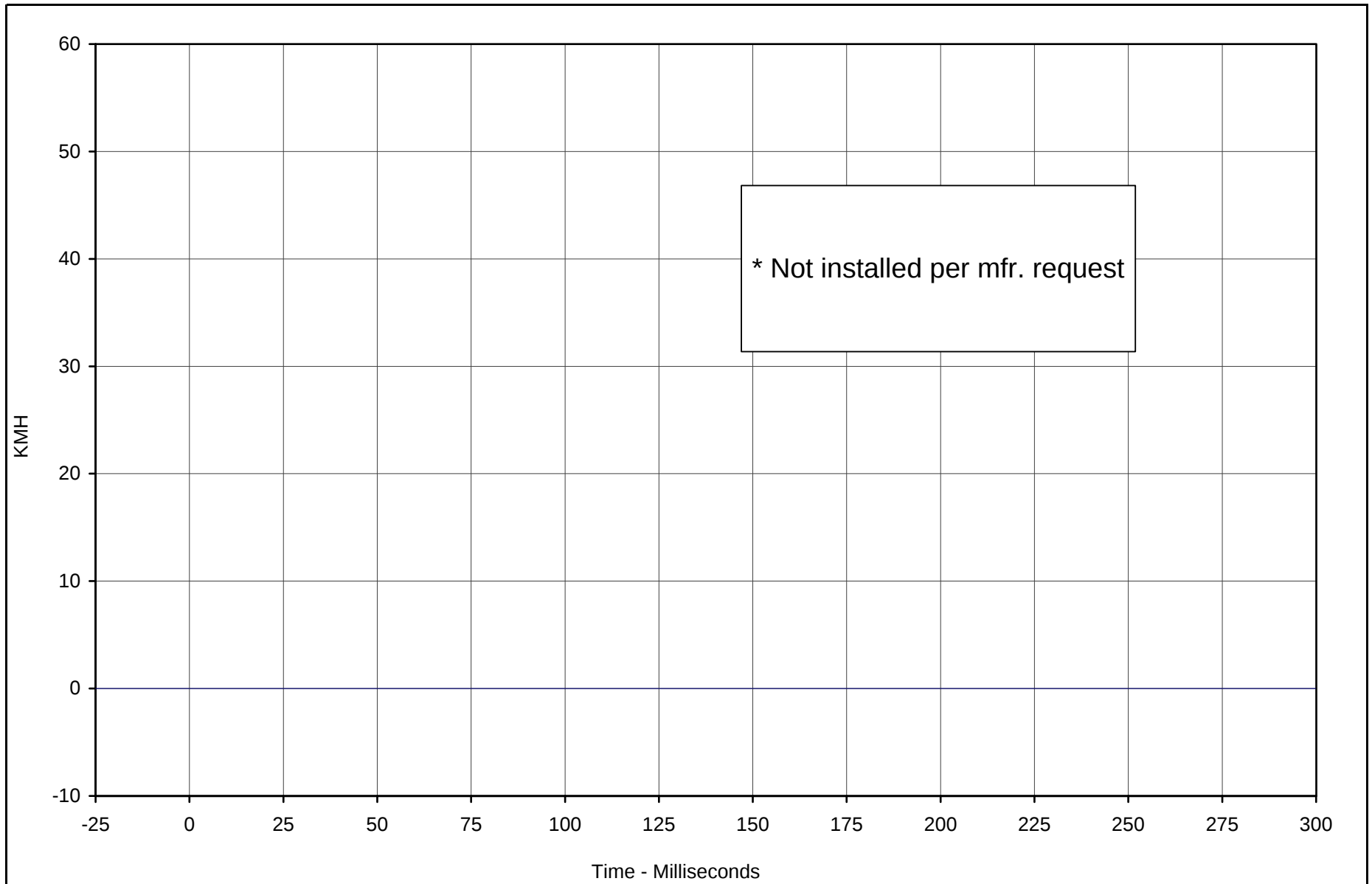


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



* Not installed per mfr. request

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Instrument Panel Velocity	095	IN1	KMH	0.0	0.0	0.0	0.0	180

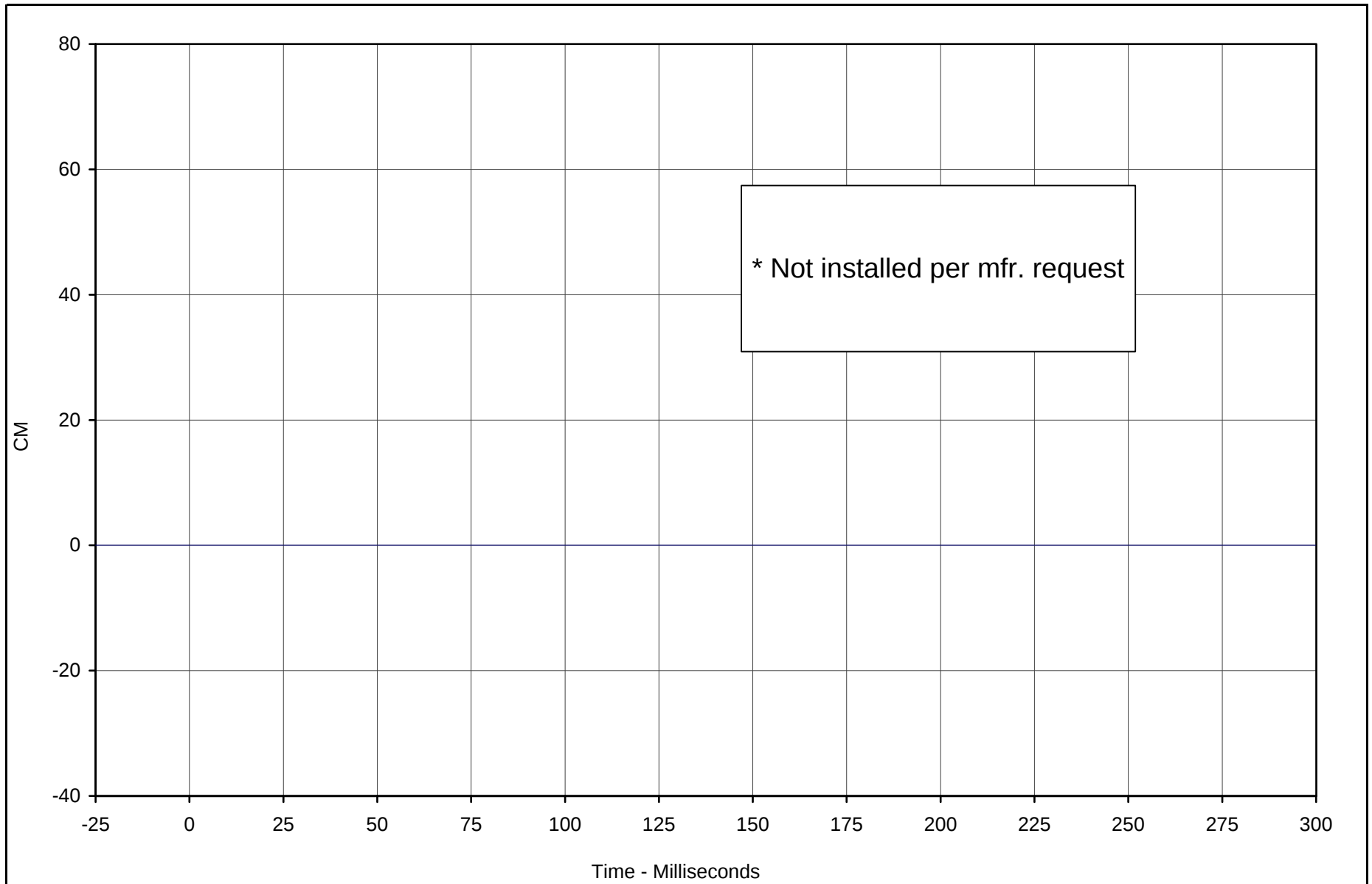


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



* Not installed per mfr. request

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Instrument Panel Displacement	095	IN2	CM	0.0	0.0	0.0	0.0	180



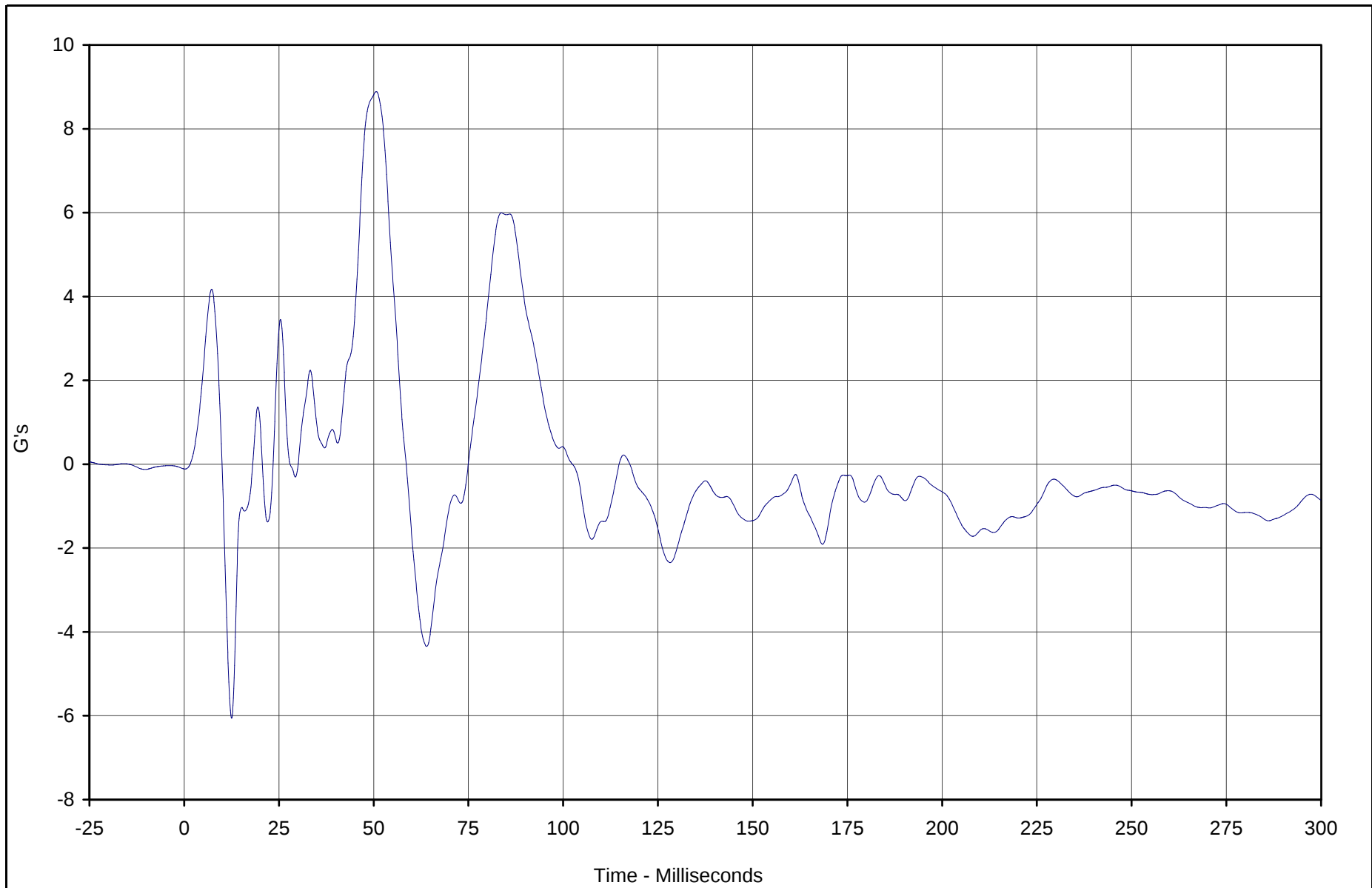
Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

B-144



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Left Rear Z	096	FIL	G's	8.9	50.7	-6.1	12.5	60



Test Vehicle: 2002 Mazda MPV LX Minivan

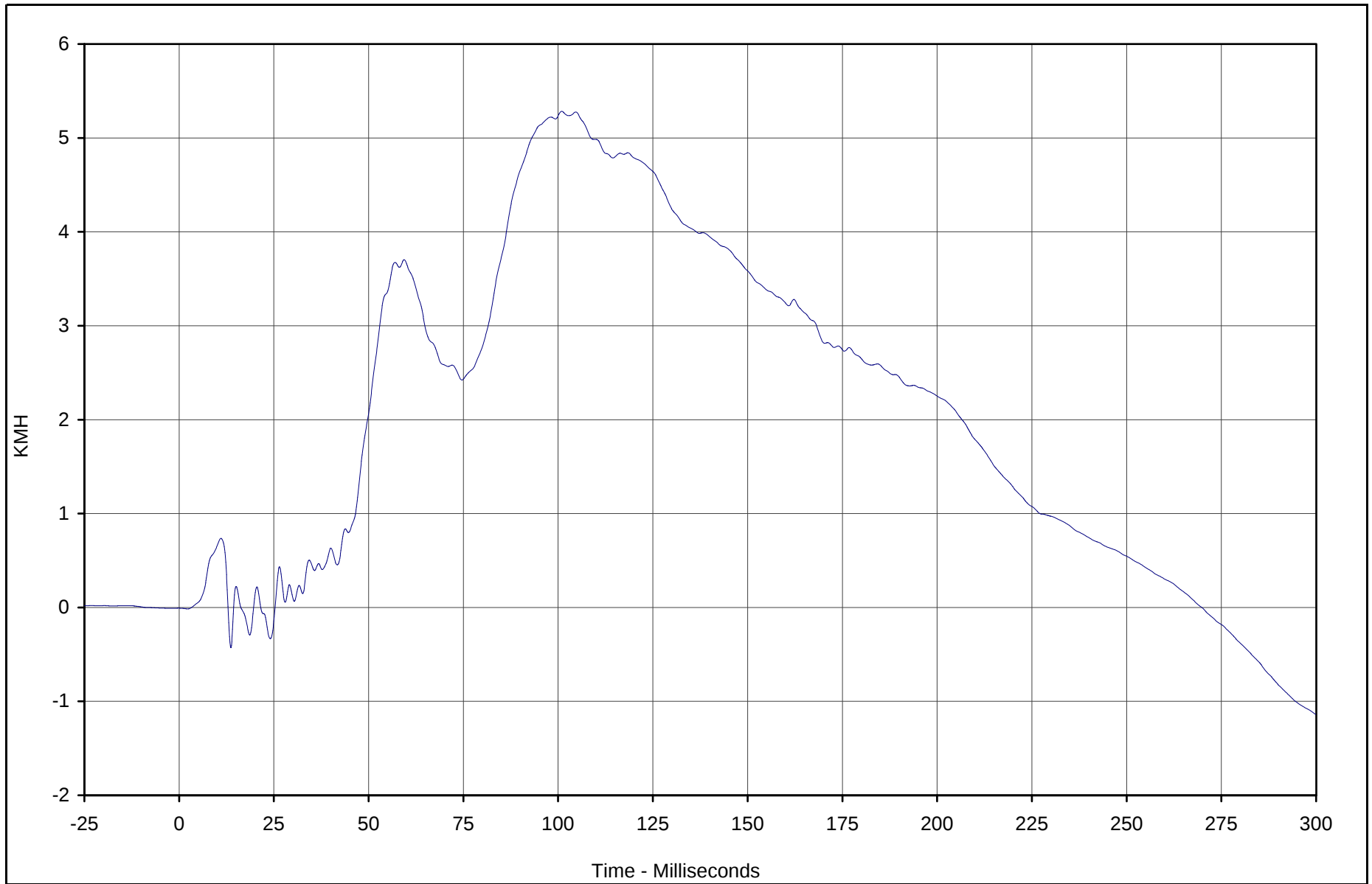
Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

KAR22001-08

B-145



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Left Rear Z Velocity	096	IN1	KMH	5.3	101.0	-1.1	299.9	180



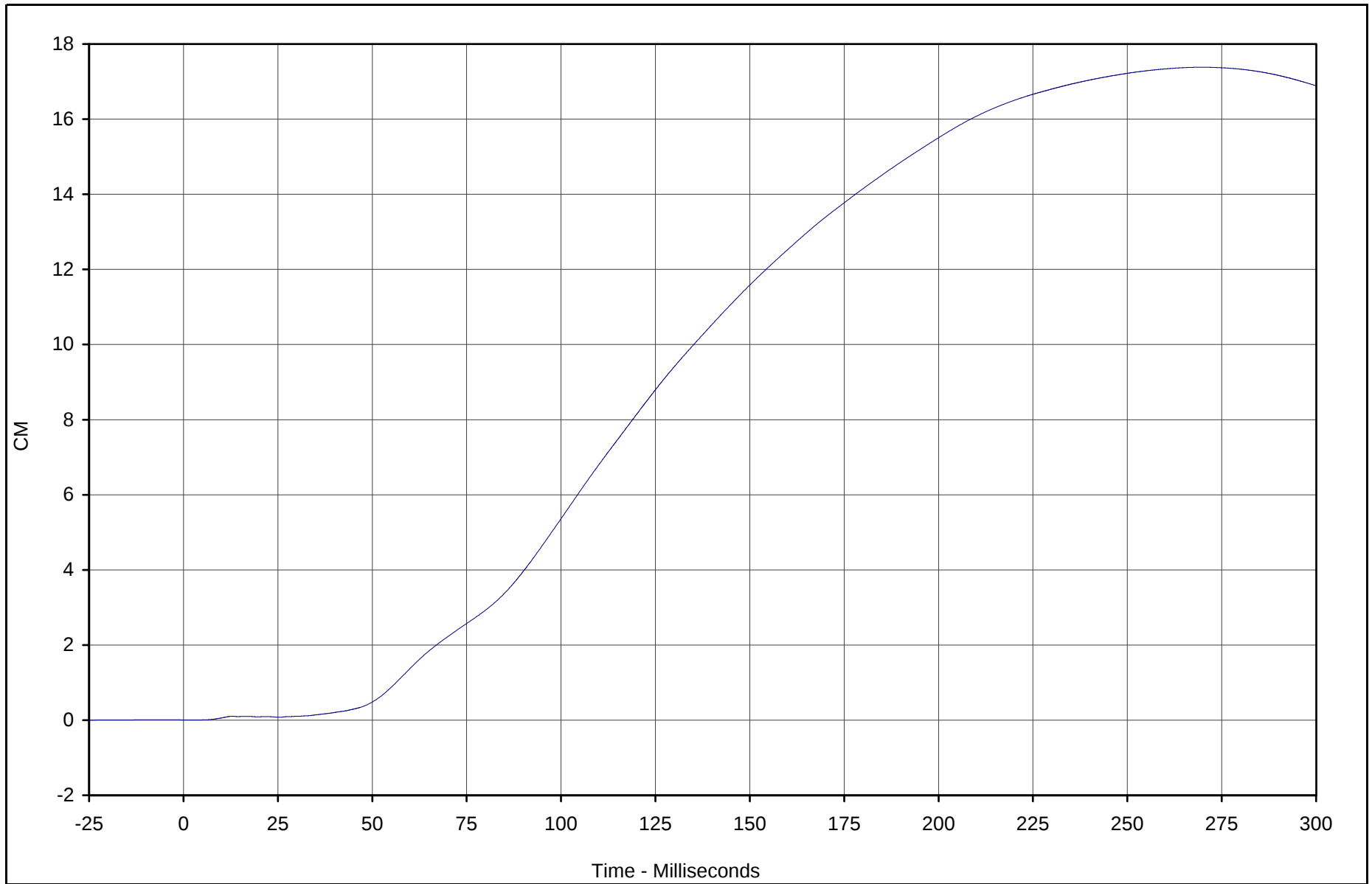
Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

KAR22001-08



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Left Rear Z Displ.	096	IN2	CM	17.4	269.8	0.0	3.3	180

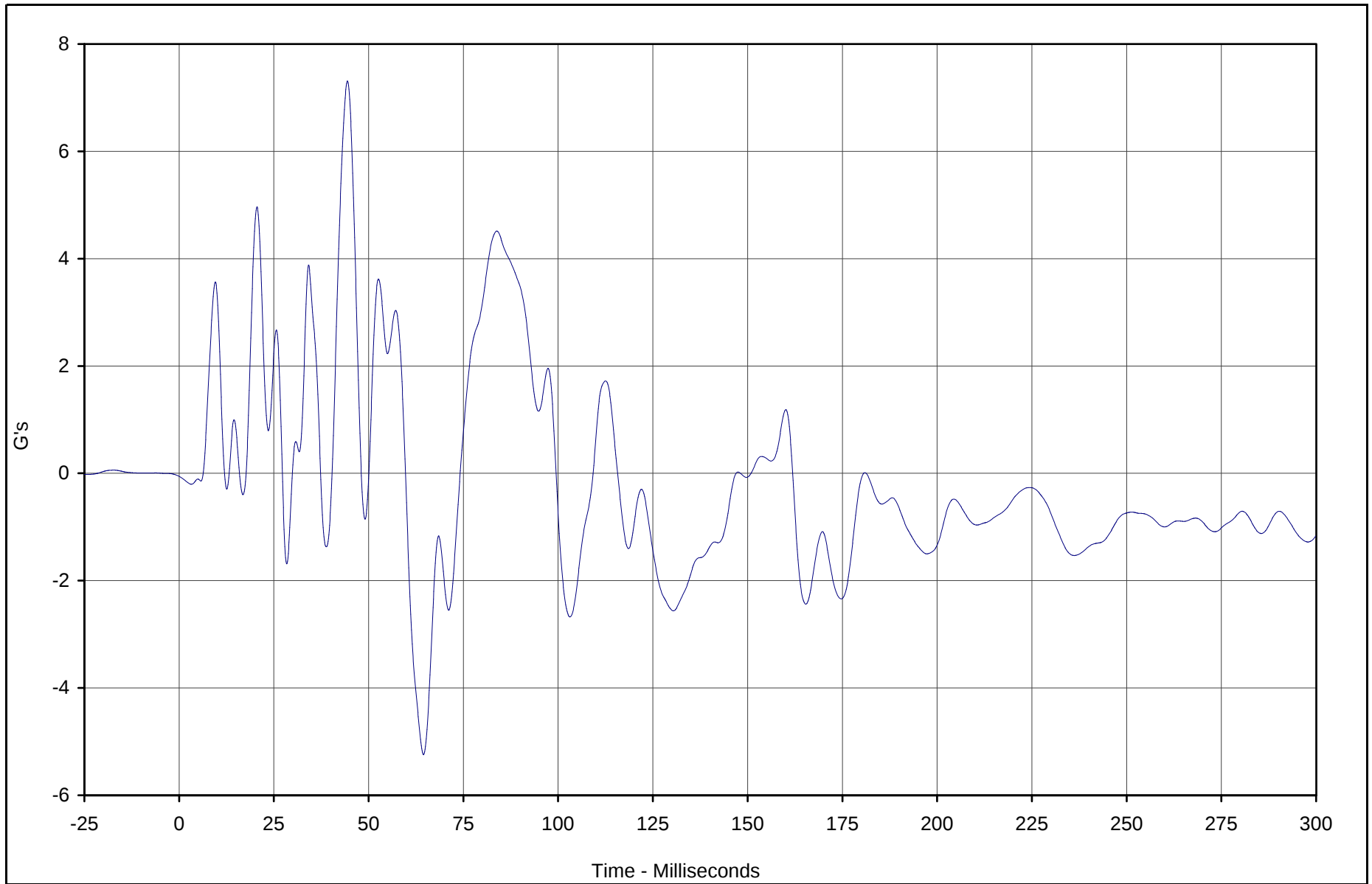


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Right Rear Z	097	FIL	G's	7.3	44.4	-5.2	64.5	60

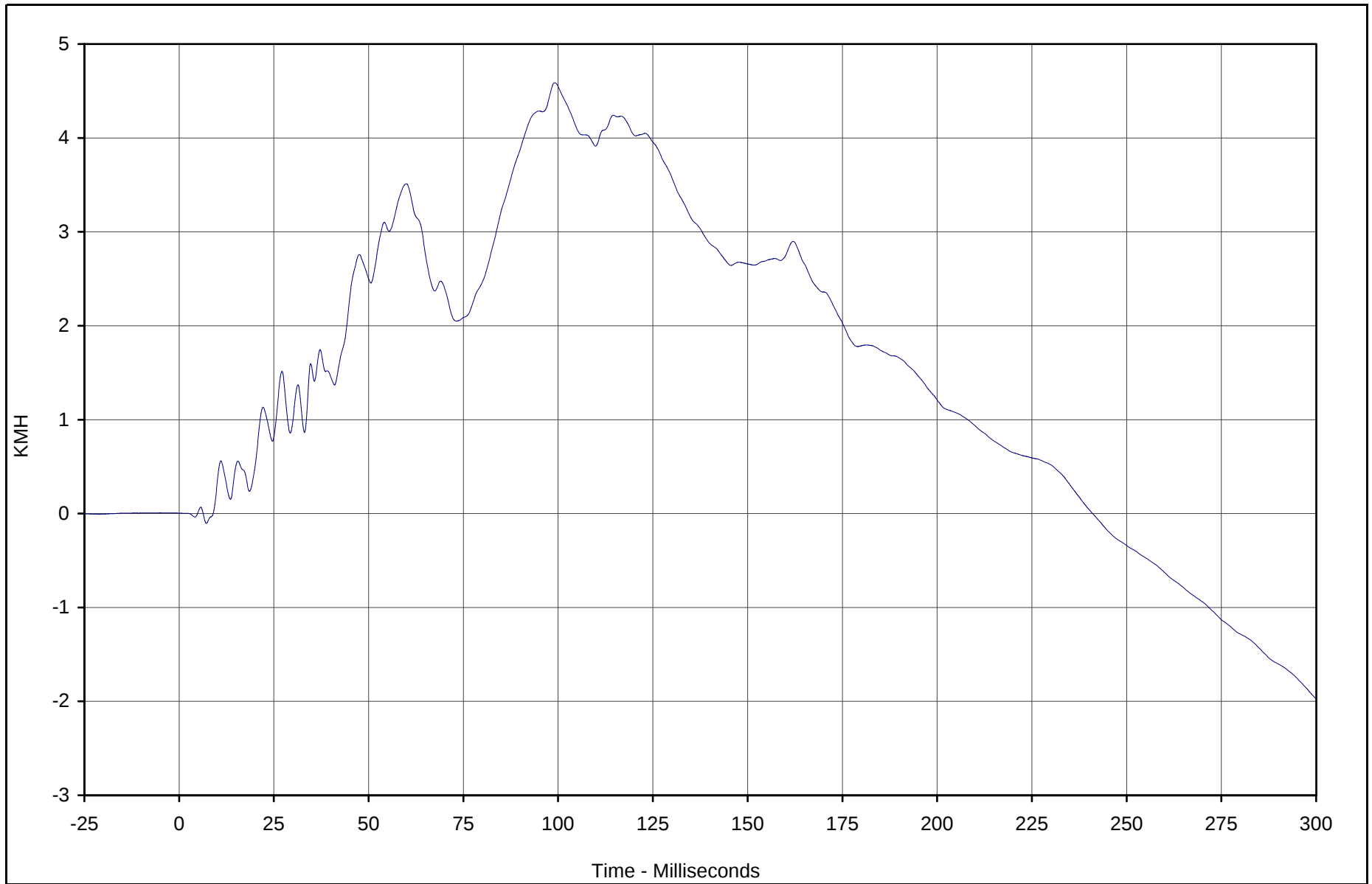


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Right Rear Z Velocity	097	IN1	KMH	4.6	99.1	-2.0	299.9	180

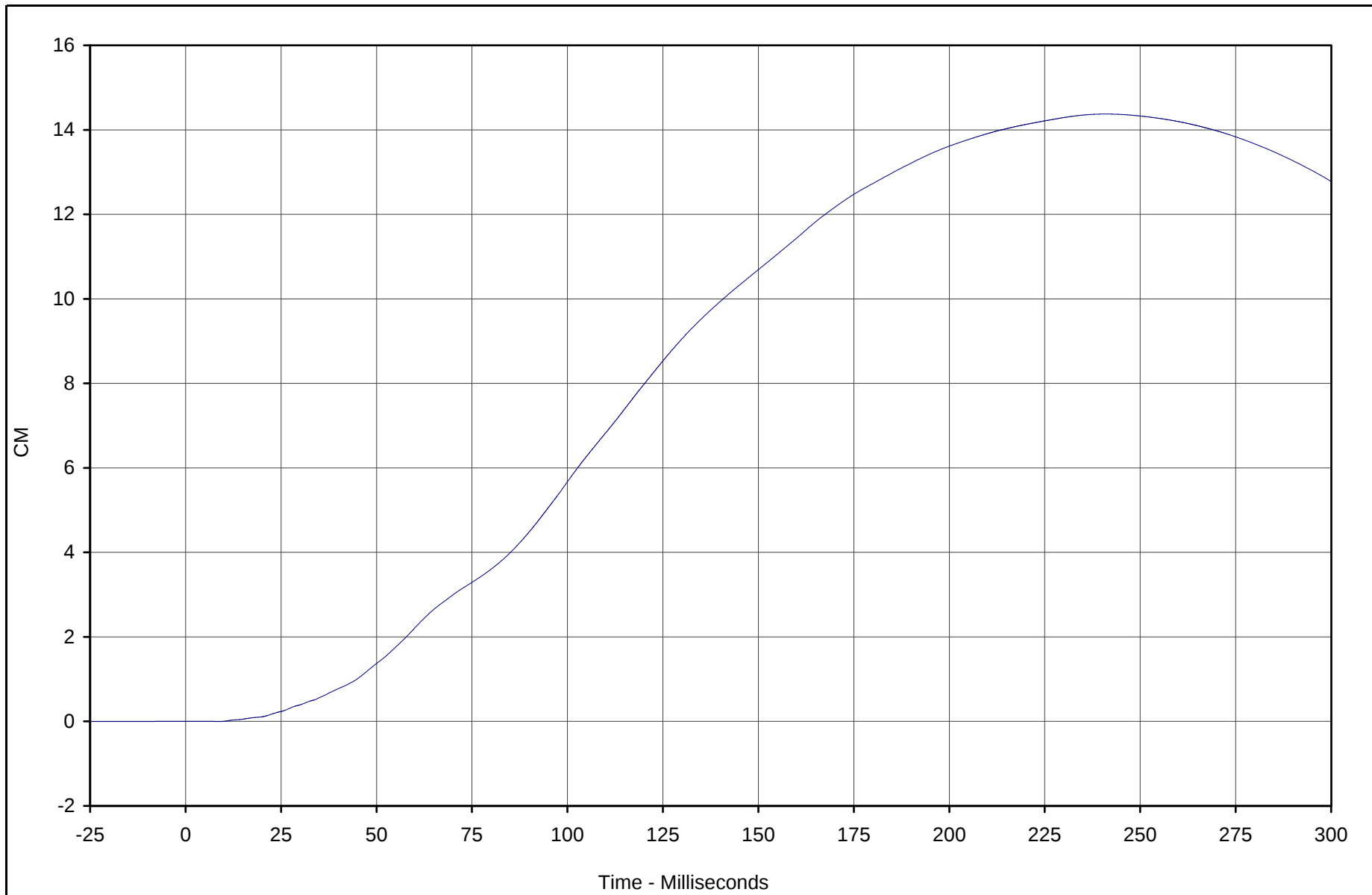


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle Right Rear Z Displ.	097	IN2	CM	14.4	241.0	0.0	9.0	180



Test Vehicle: 2002 Mazda MPV LX Minivan

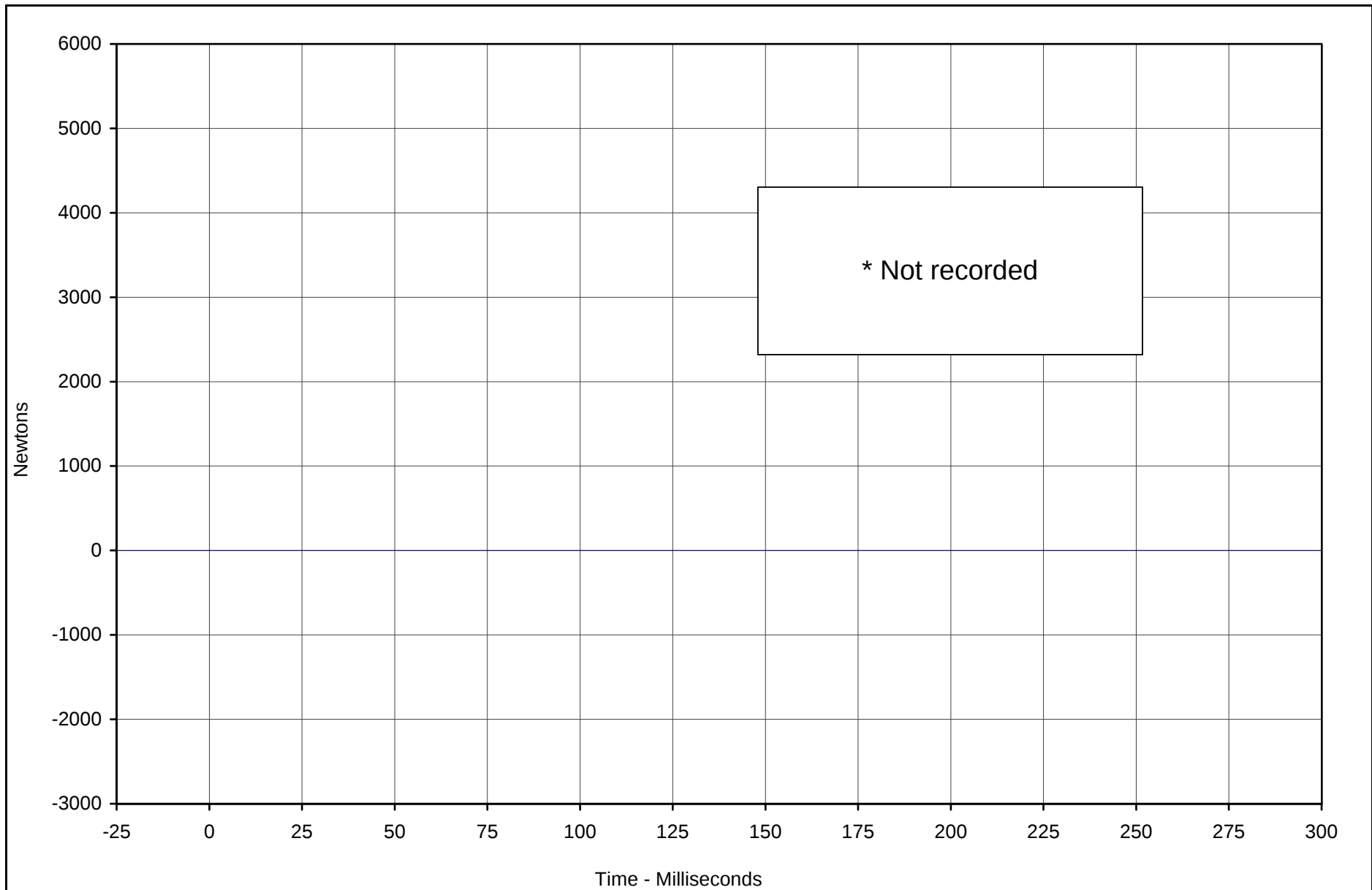
Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

APPENDIX C

LOAD CELL BARRIER DATA PLOTS



* Not recorded

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force A1	098	FIL	Newtons	0.0	0.0	0.0	0.0	60



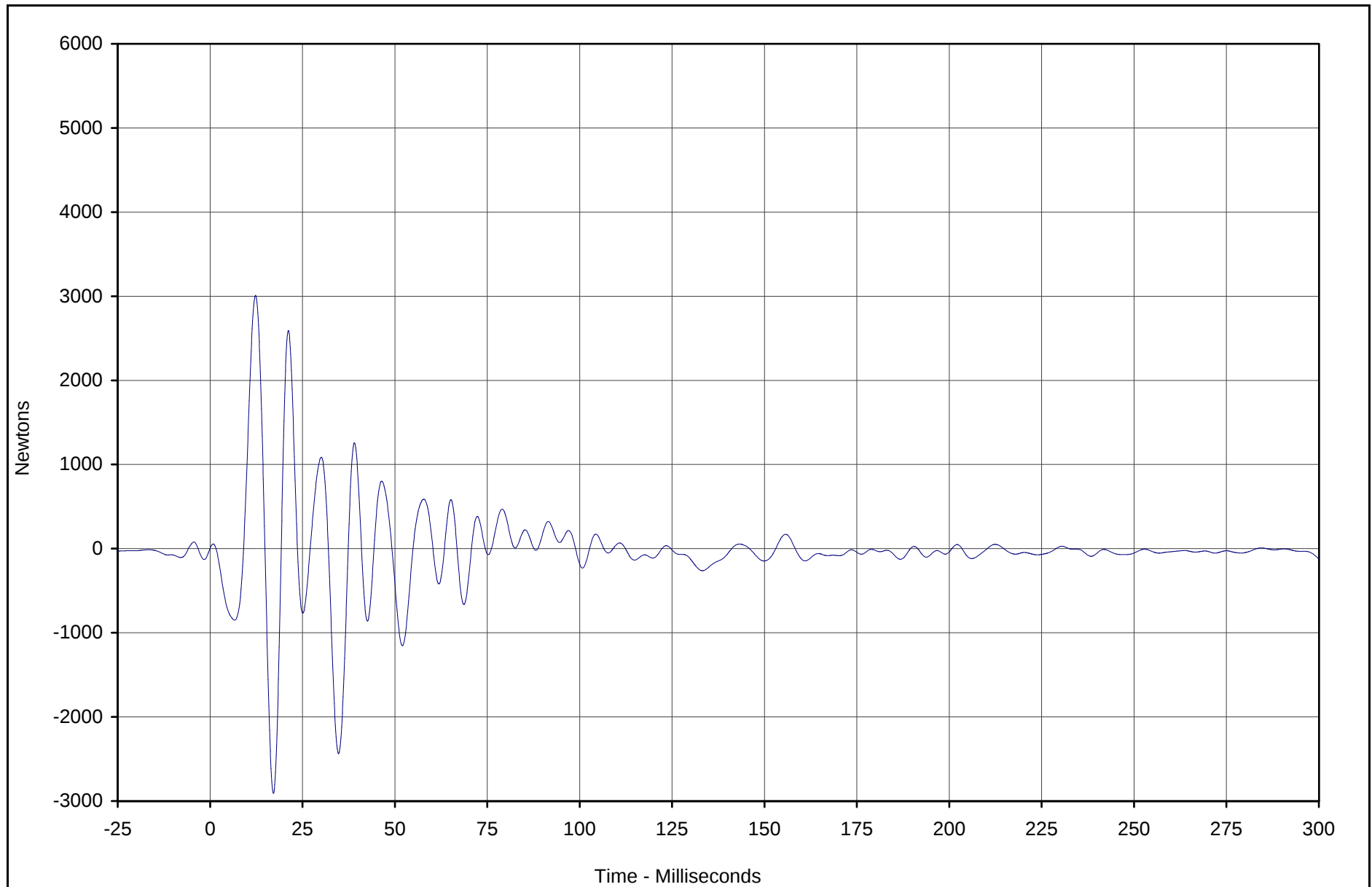
Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

C-2



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force A2	099	FIL	Newtons	3010.7	12.3	-2906.7	17.1	60

Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

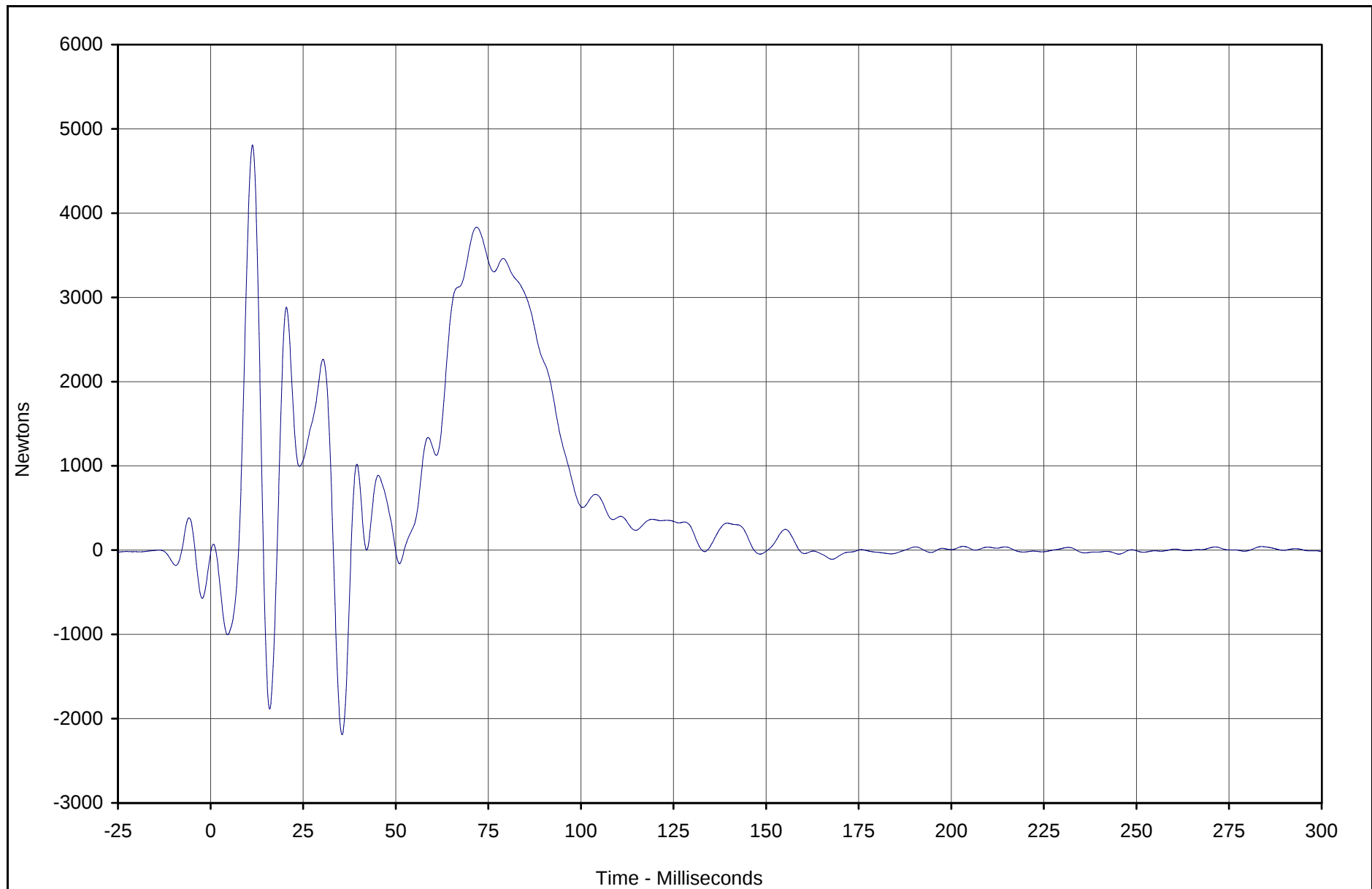
Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



KAR22001-08

C-3



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force A3	100	FIL	Newtons	4808.4	11.3	-2189.9	35.5	60

Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

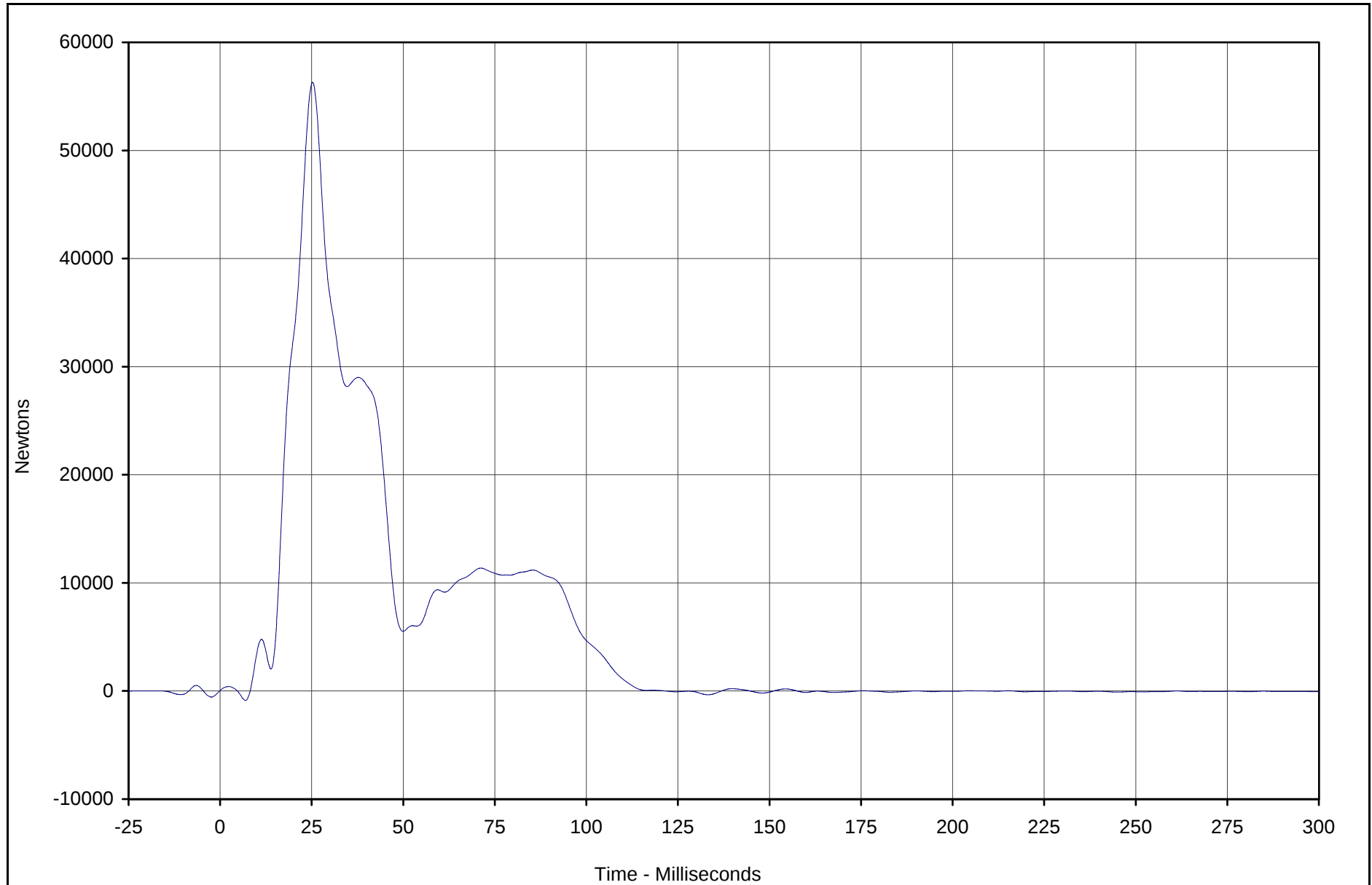
Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



KAR22001-08

C-4



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force A4	101	FIL	Newtons	56296.8	25.2	-869.8	6.9	60



Test Vehicle: 2002 Mazda MPV LX Minivan

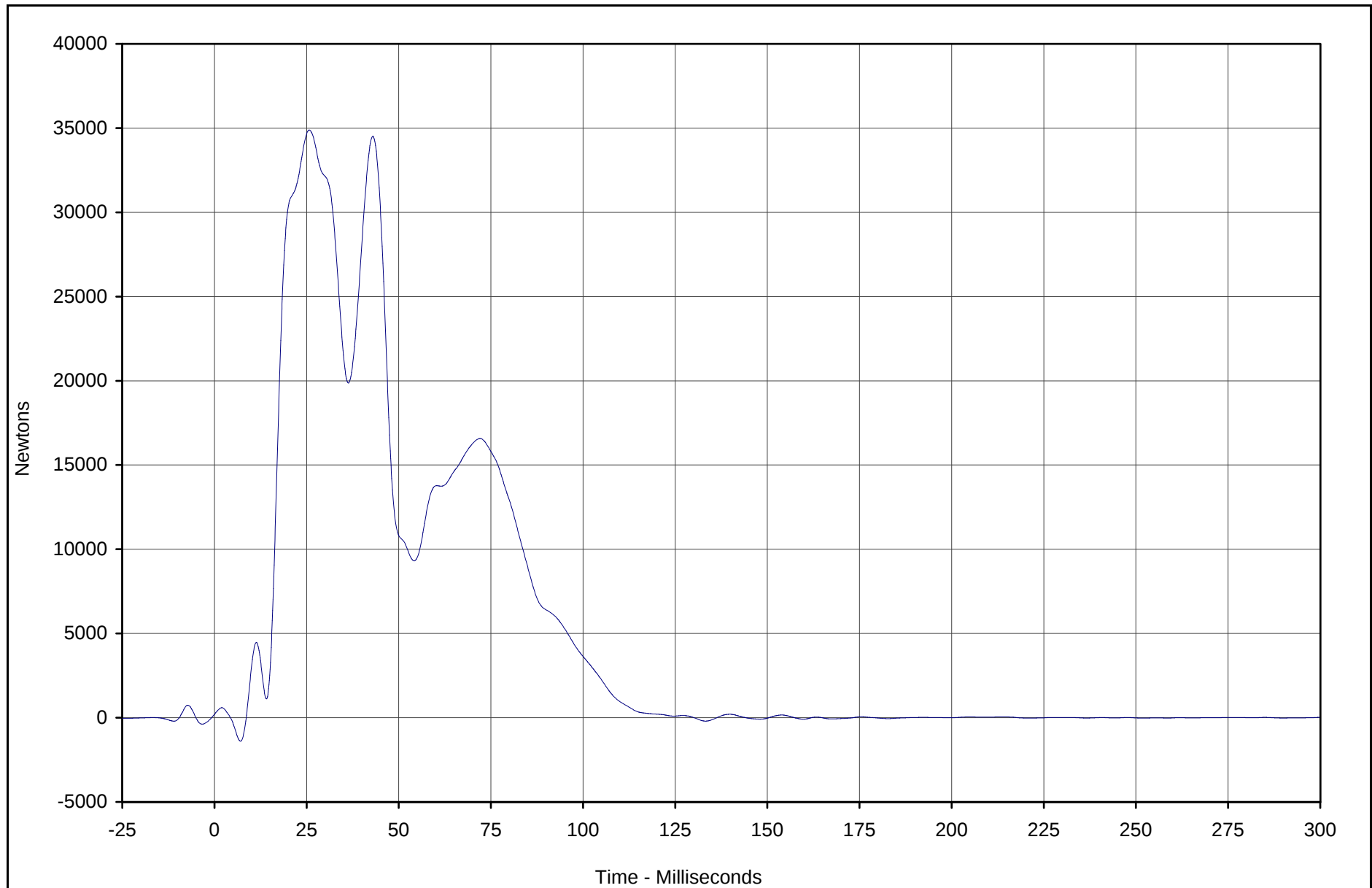
Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

KAR22001-08

C-5



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force A5	102	FIL	Newtons	34887.7	25.7	-1397.7	7.1	60



Test Vehicle: 2002 Mazda MPV LX Minivan

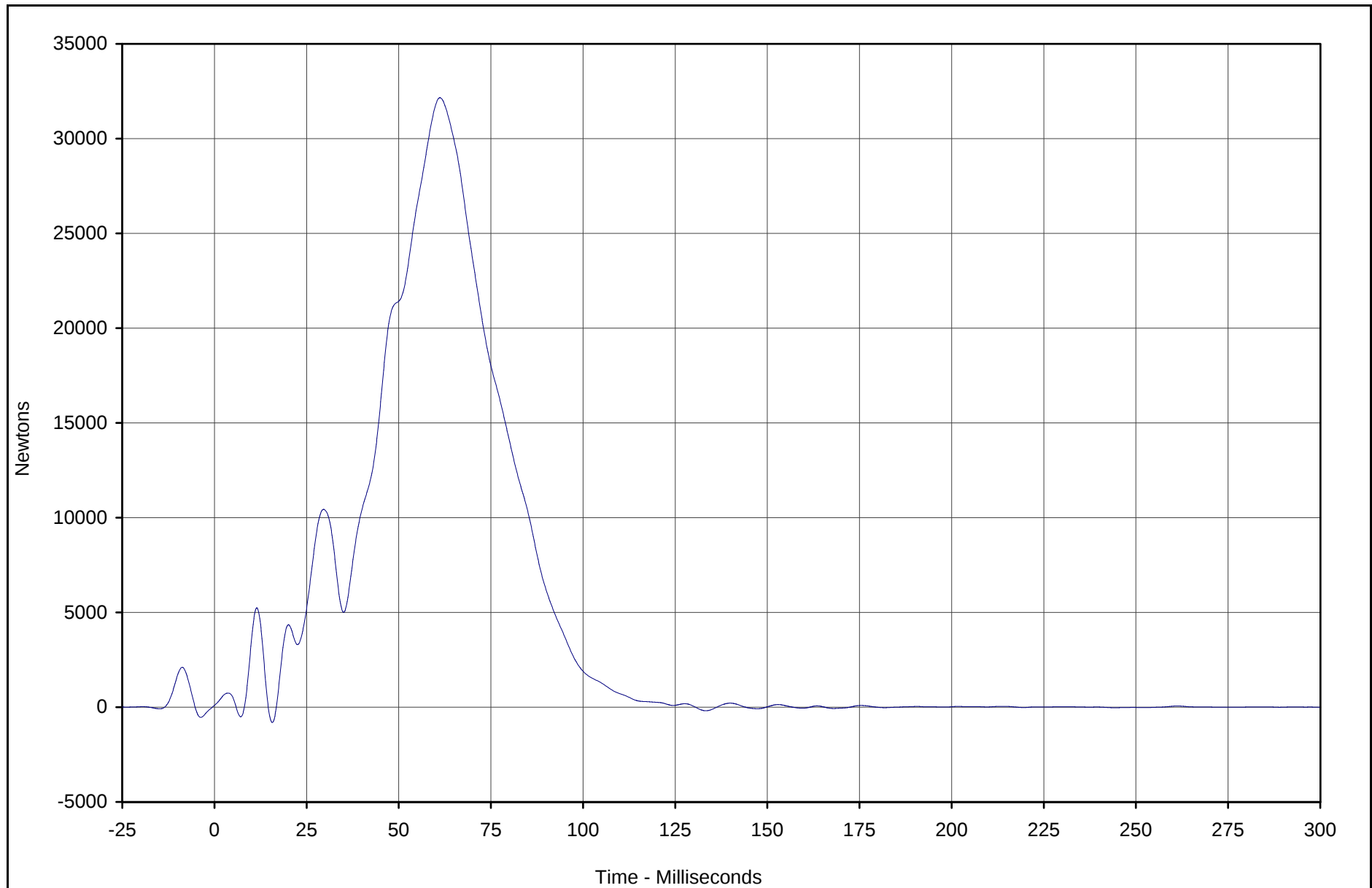
Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

KAR22001-08

C-6



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force A6	103	FIL	Newtons	32163.0	61.2	-813.4	15.7	60



Test Vehicle: 2002 Mazda MPV LX Minivan

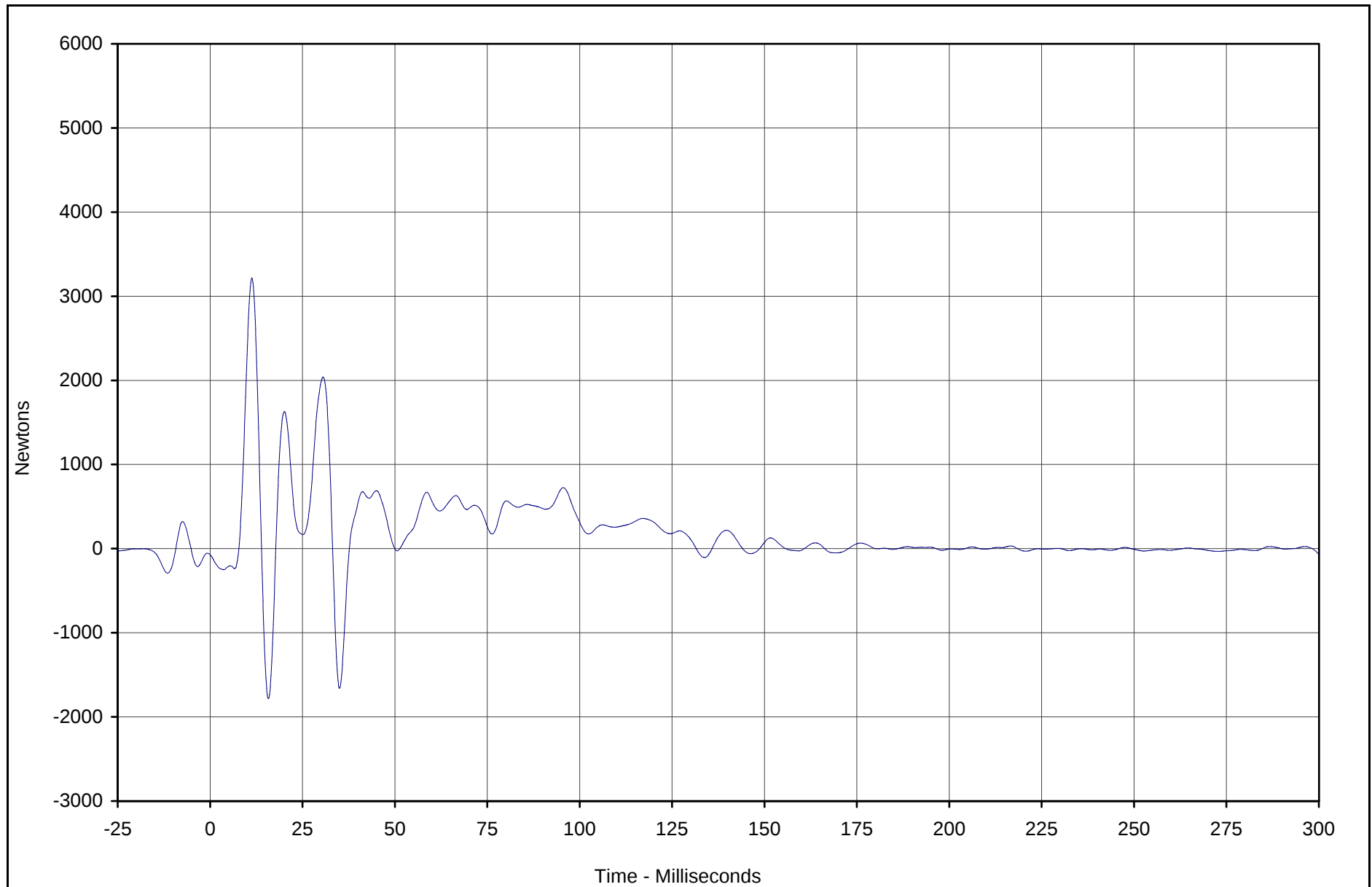
Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

KAR22001-08

C-7



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force A7	104	FIL	Newtons	3217.5	11.3	-1783.7	15.8	60



Test Vehicle: 2002 Mazda MPV LX Minivan

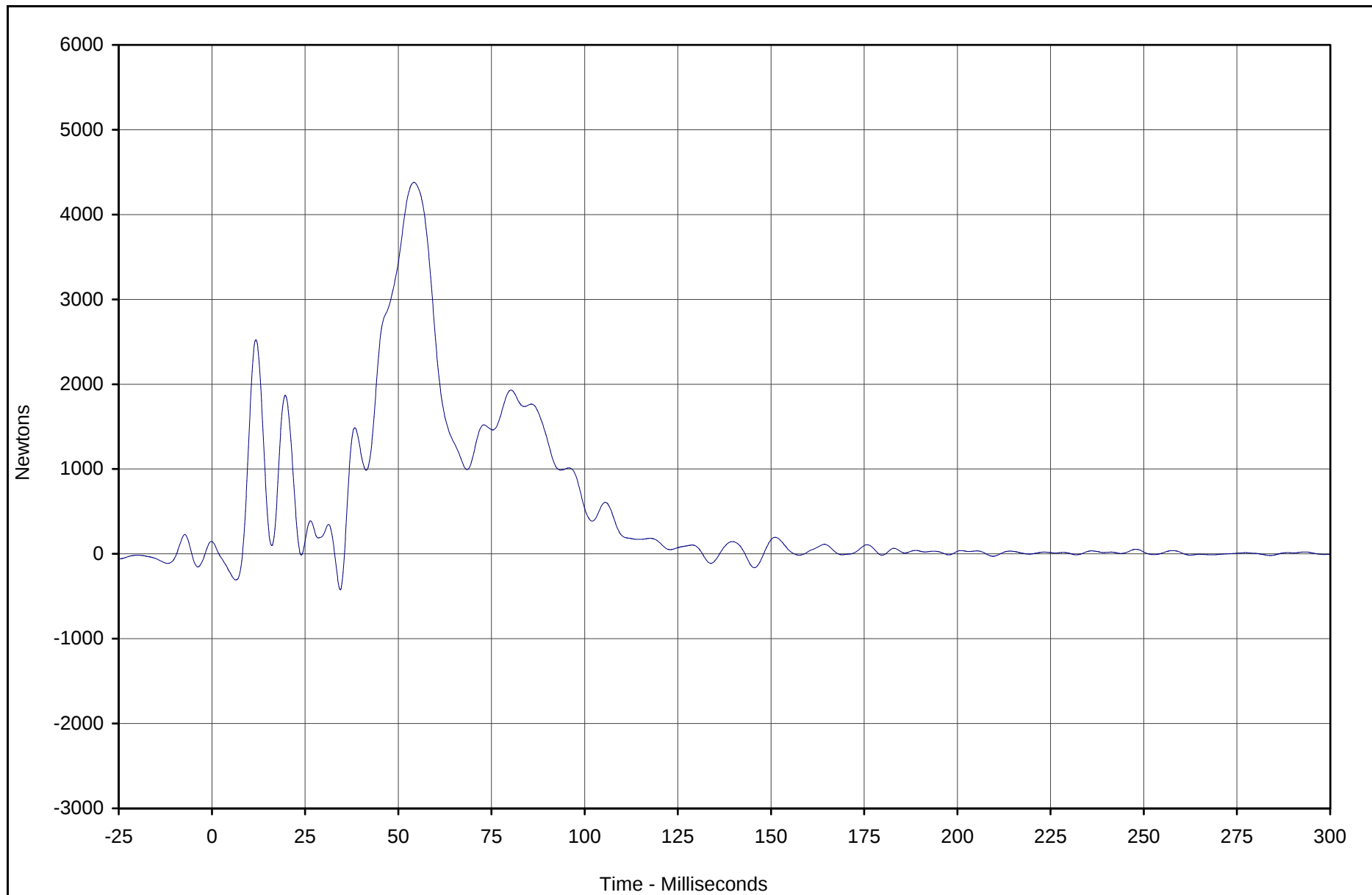
Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

KAR22001-08

C-8



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force A8	105	FIL	Newtons	4379.7	54.2	-423.5	34.4	60

Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

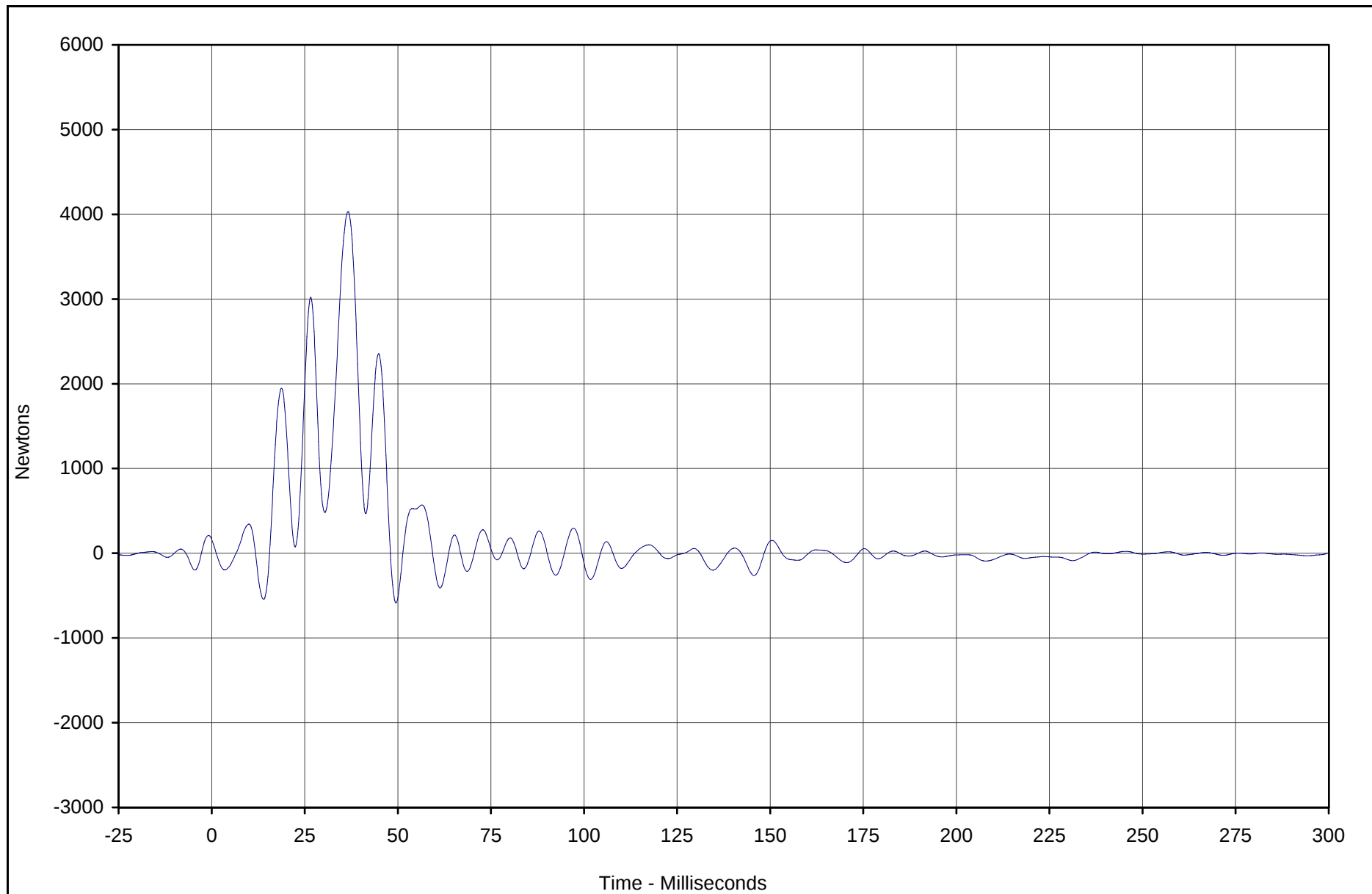
Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



KAR22001-08

C-9



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force A9	106	FIL	Newtons	4032.3	36.6	-585.2	49.5	60



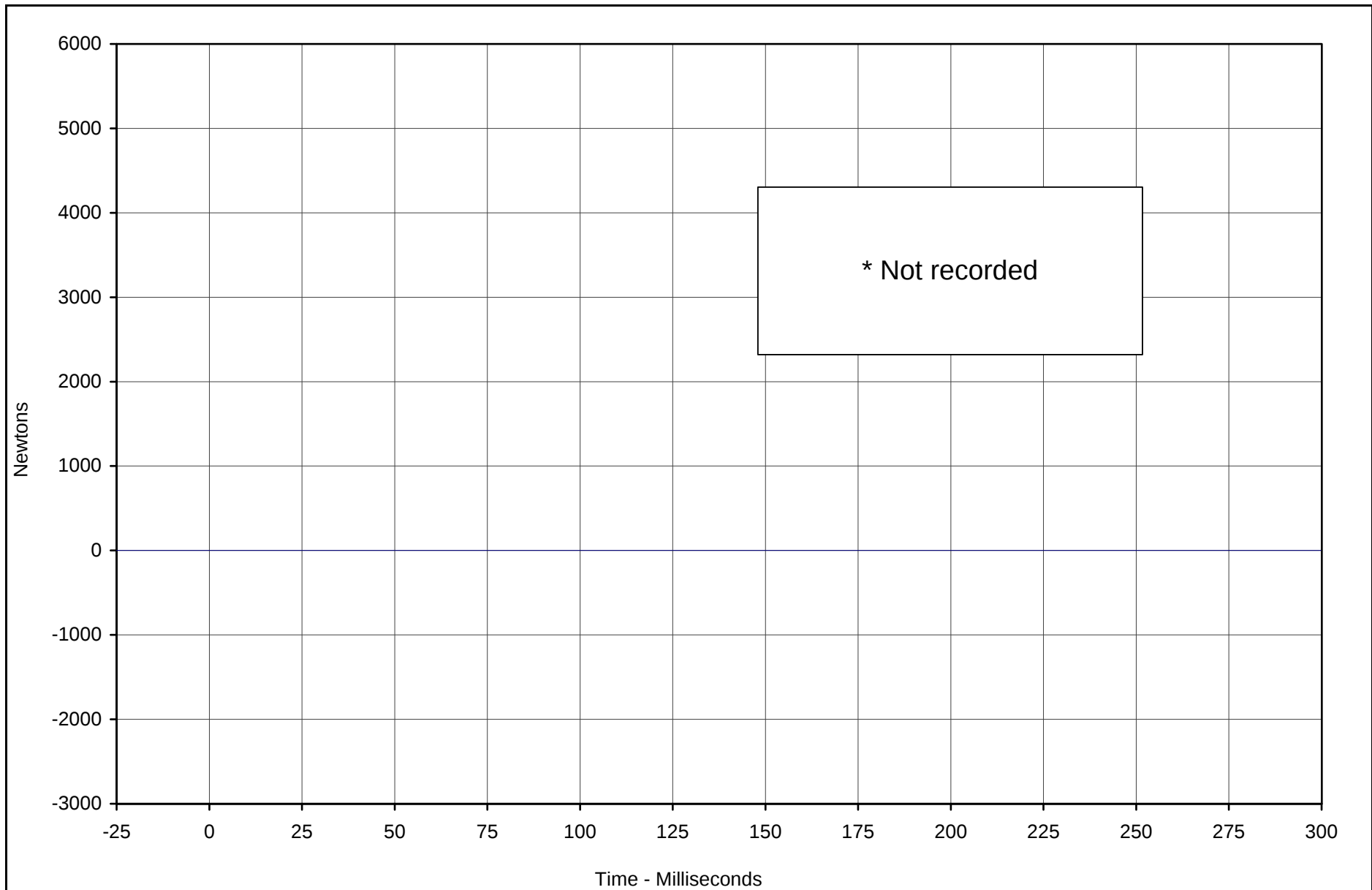
Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

KAR22001-08



* Not recorded

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force B1	107	FIL	Newtons	0.0	0.0	0.0	0.0	60



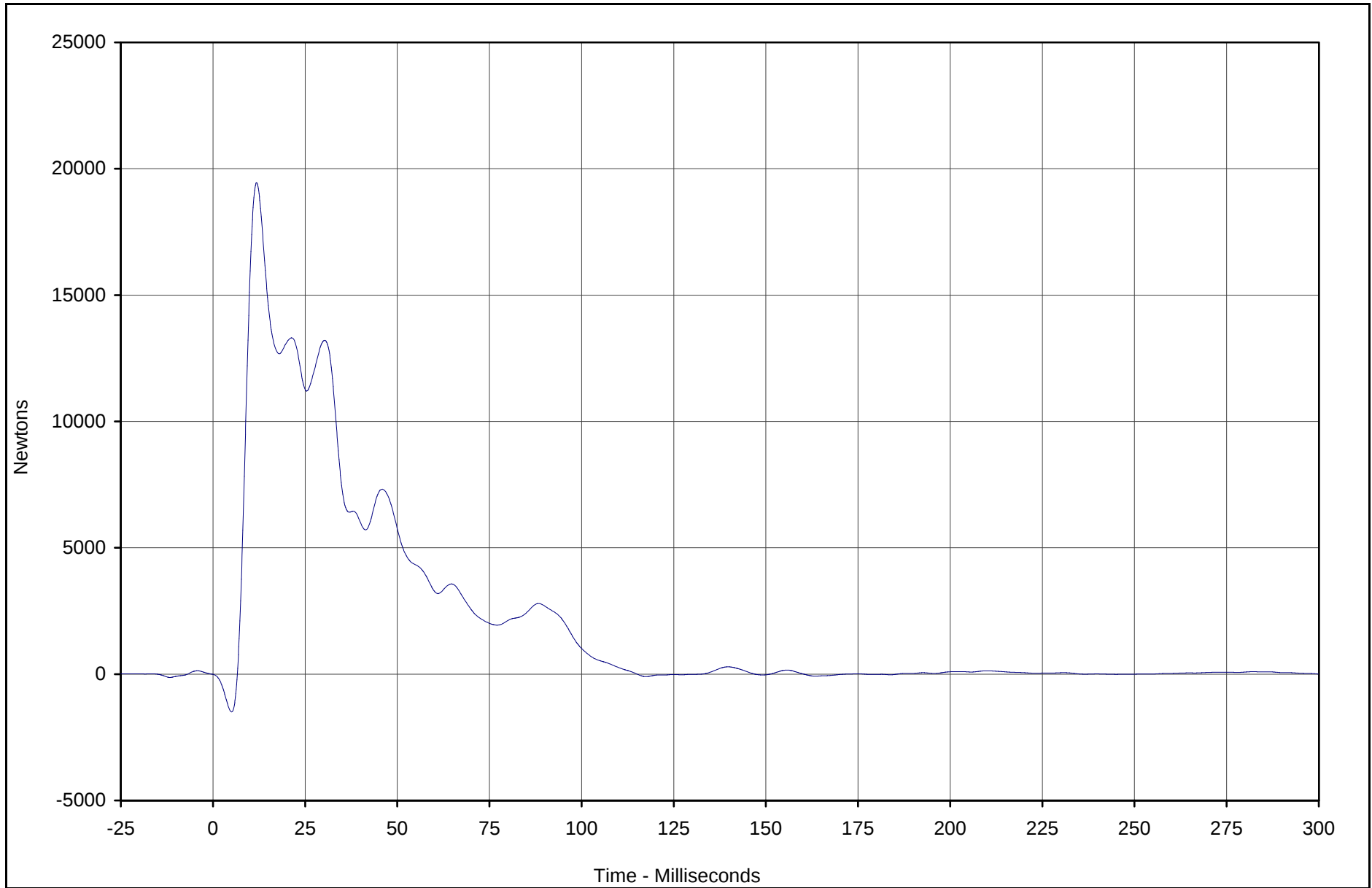
Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

C-11



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force B2	108	FIL	Newtons	19446.4	11.8	-1498.9	5.1	60



Test Vehicle: 2002 Mazda MPV LX Minivan

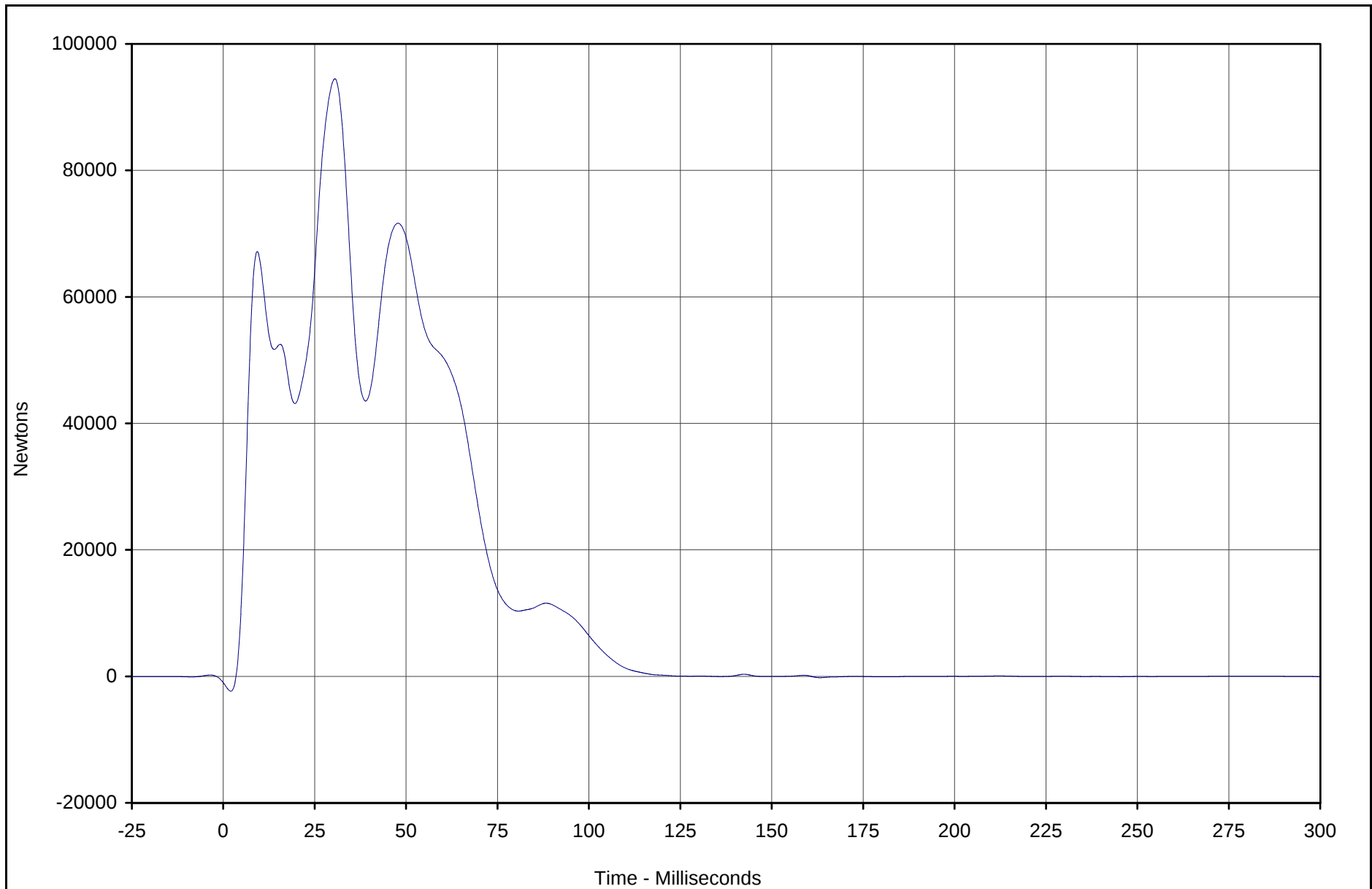
Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

KAR22001-08

C-12



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force B3	109	FIL	Newtons	94491.2	30.5	-2343.9	2.1	60



Test Vehicle: 2002 Mazda MPV LX Minivan

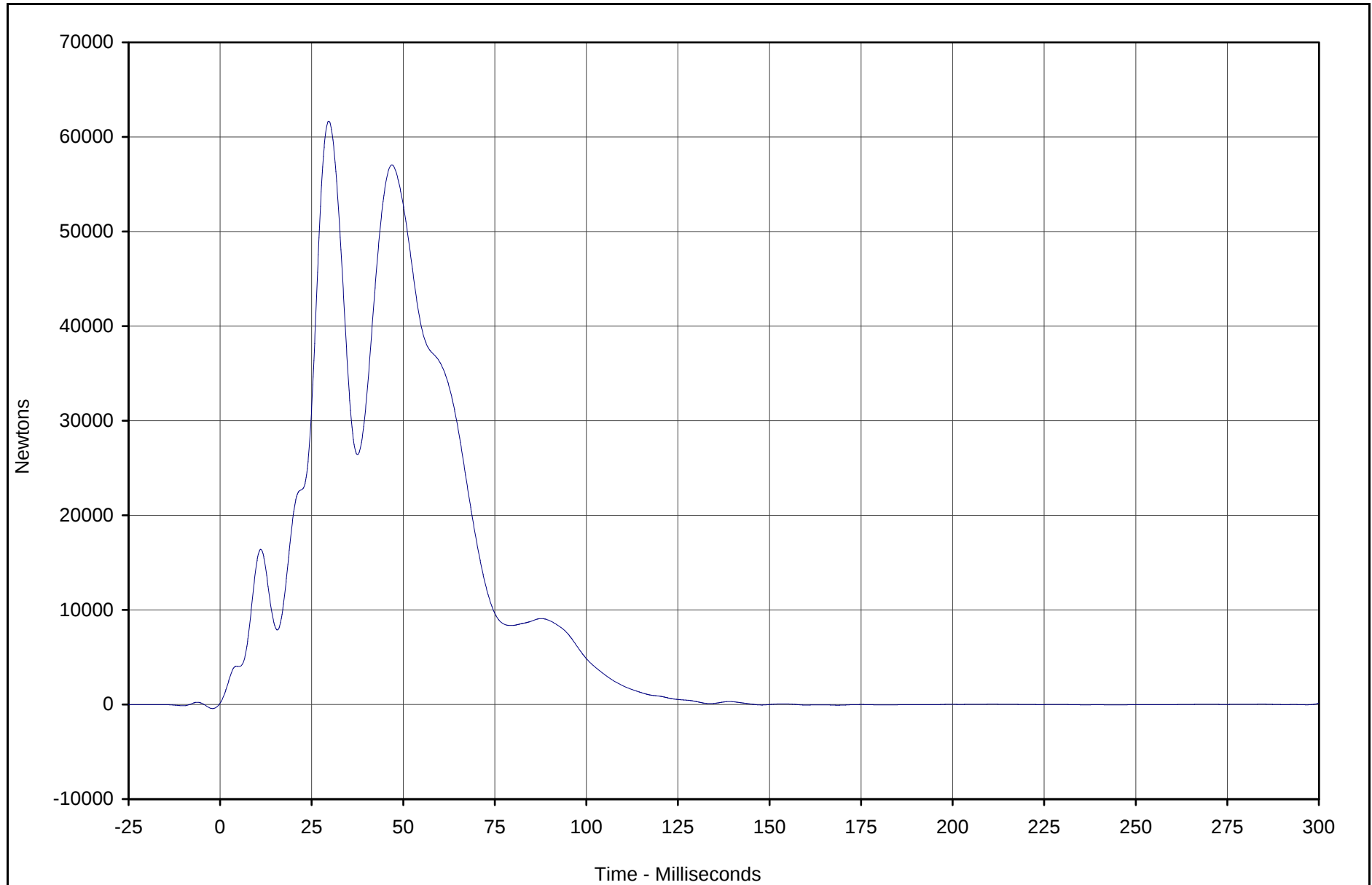
Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

KAR22001-08

C-13



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force B4	110	FIL	Newtons	61672.5	29.7	-73.8	168.6	60



Test Vehicle: 2002 Mazda MPV LX Minivan

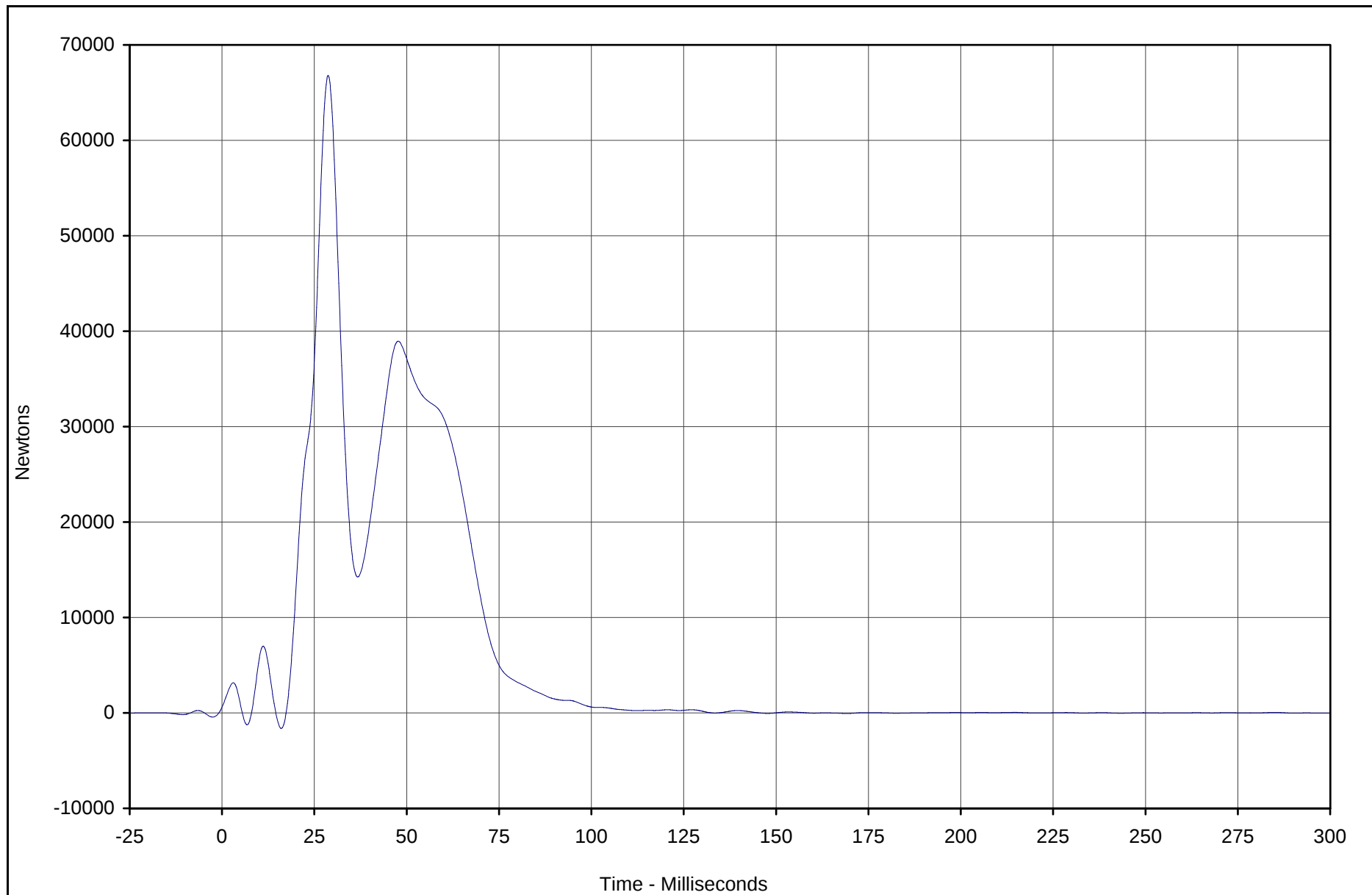
Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

KAR22001-08

C-14



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force B5	111	FIL	Newtons	66802.4	28.7	-1628.5	16.0	60

Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

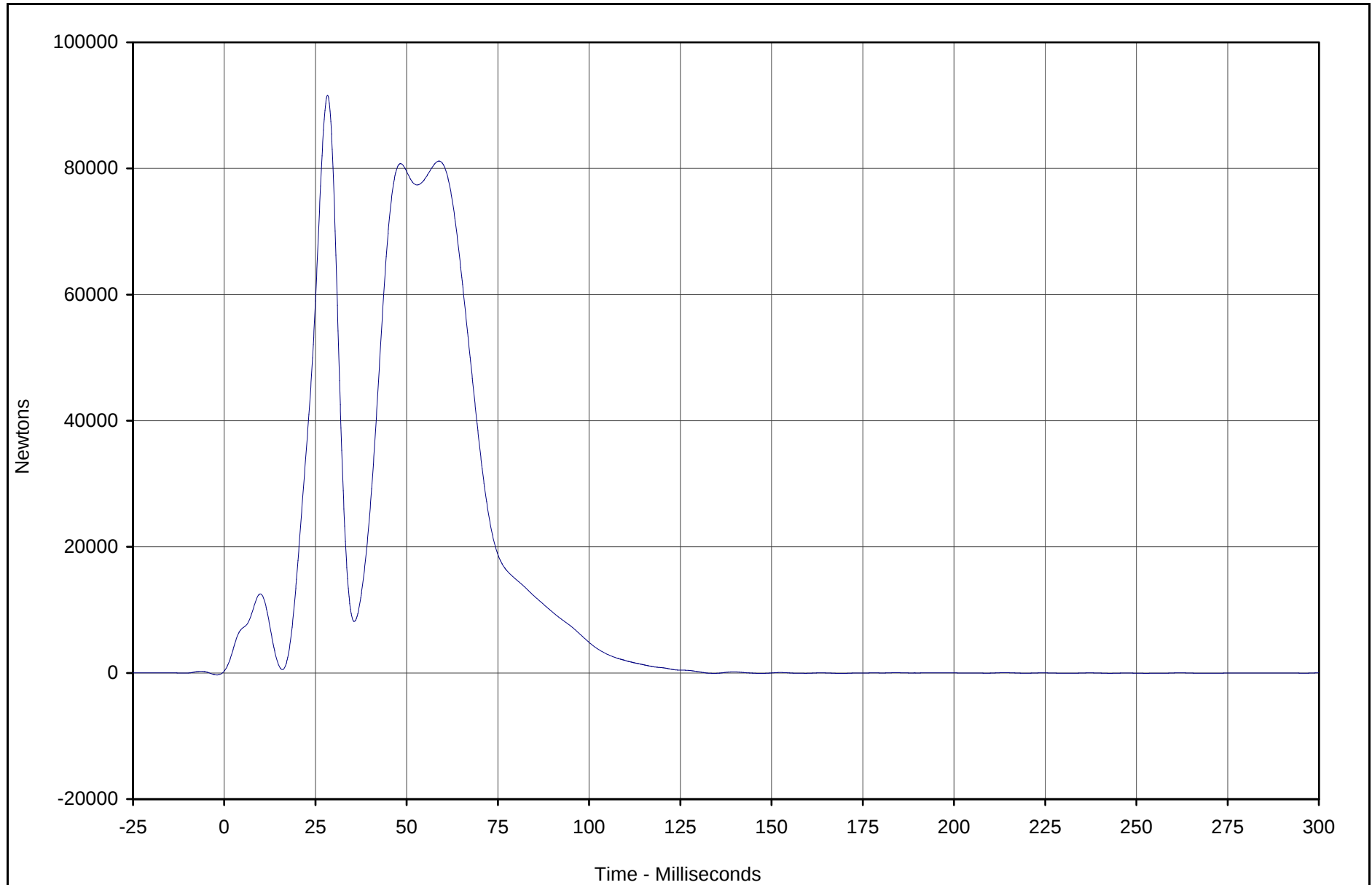
Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



KAR22001-08

C-15



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force B6	112	FIL	Newtons	91582.4	28.3	-82.1	169.2	60



Test Vehicle: 2002 Mazda MPV LX Minivan

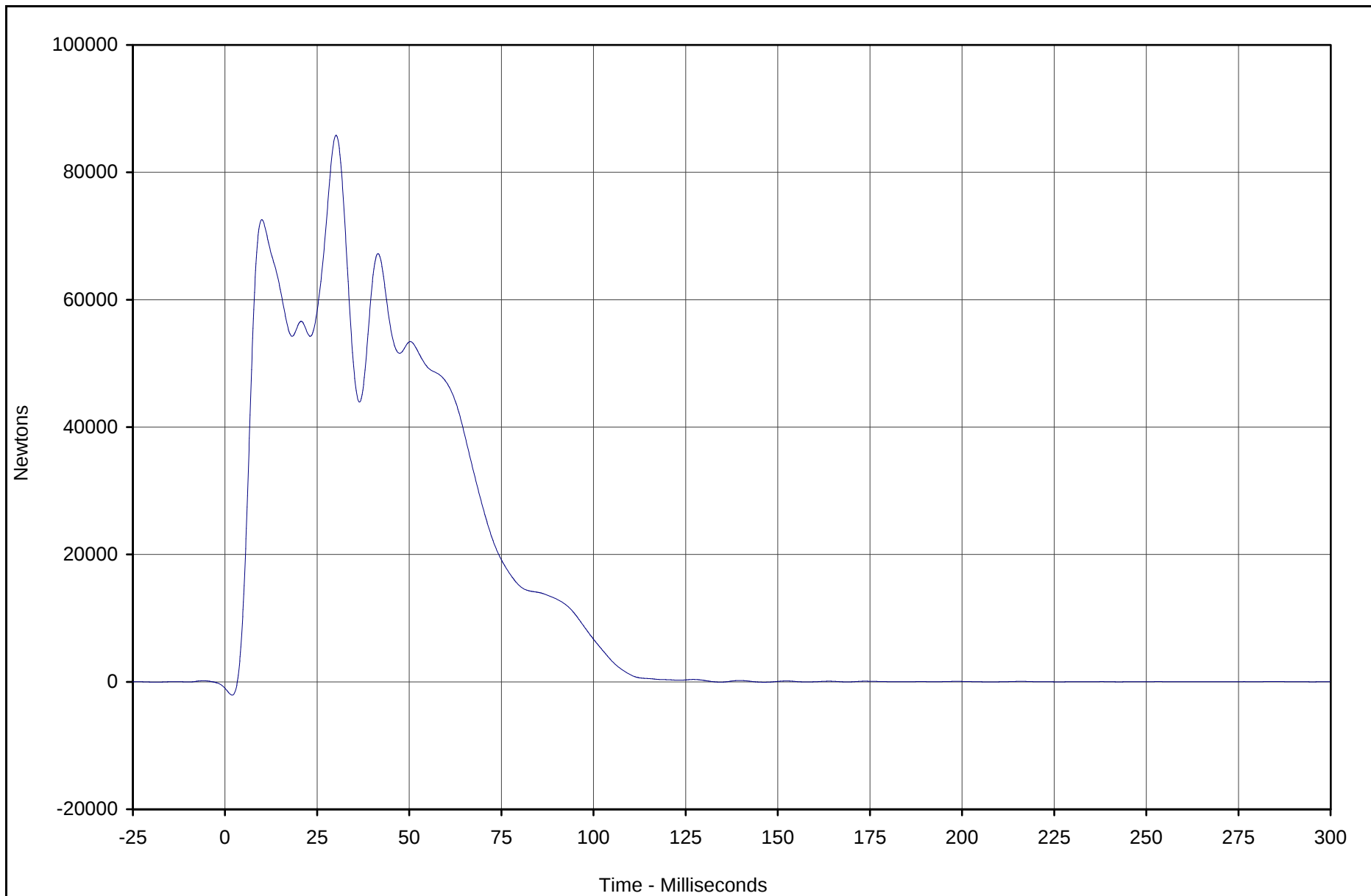
Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

KAR22001-08

C-16



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force B7	113	FIL	Newtons	85827.6	30.1	-2081.0	1.9	60



Test Vehicle: 2002 Mazda MPV LX Minivan

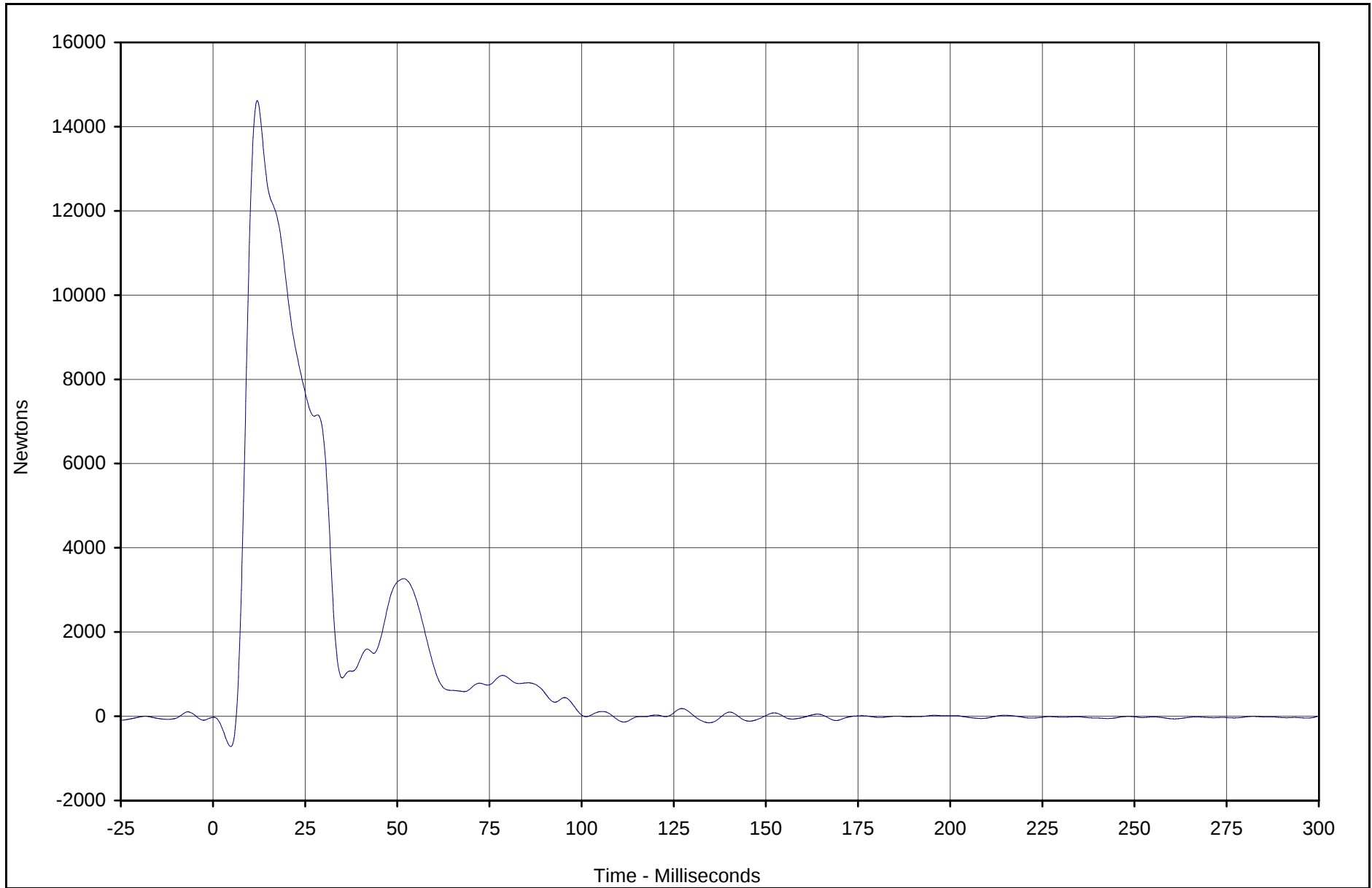
Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

KAR22001-08

C-17



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force B8	114	FIL	Newtons	14616.8	12.0	-720.0	4.8	60



Test Vehicle: 2002 Mazda MPV LX Minivan

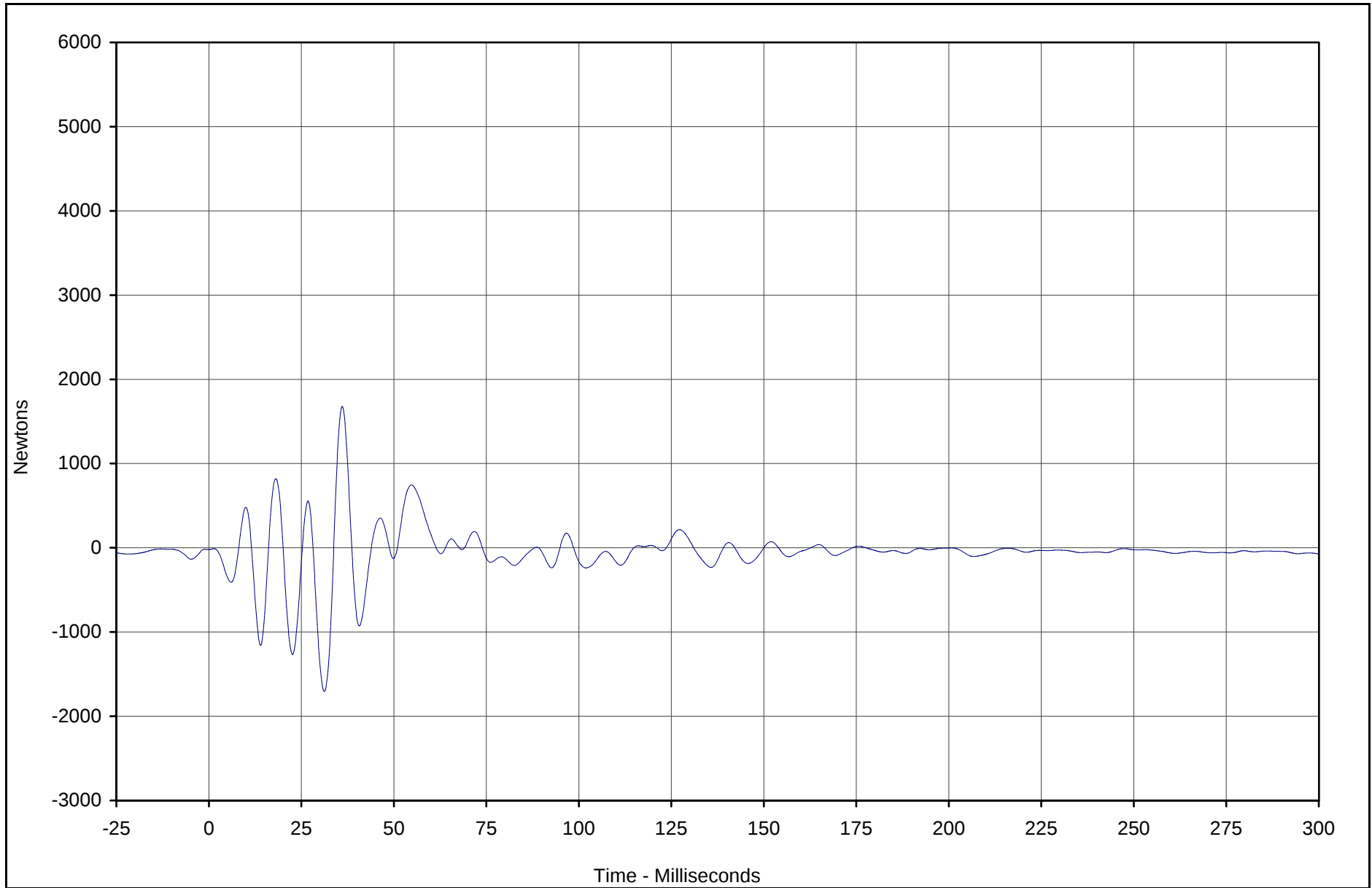
Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

KAR22001-08

C-18



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force B9	115	FIL	Newtons	1678.3	36.0	-1703.2	31.2	60



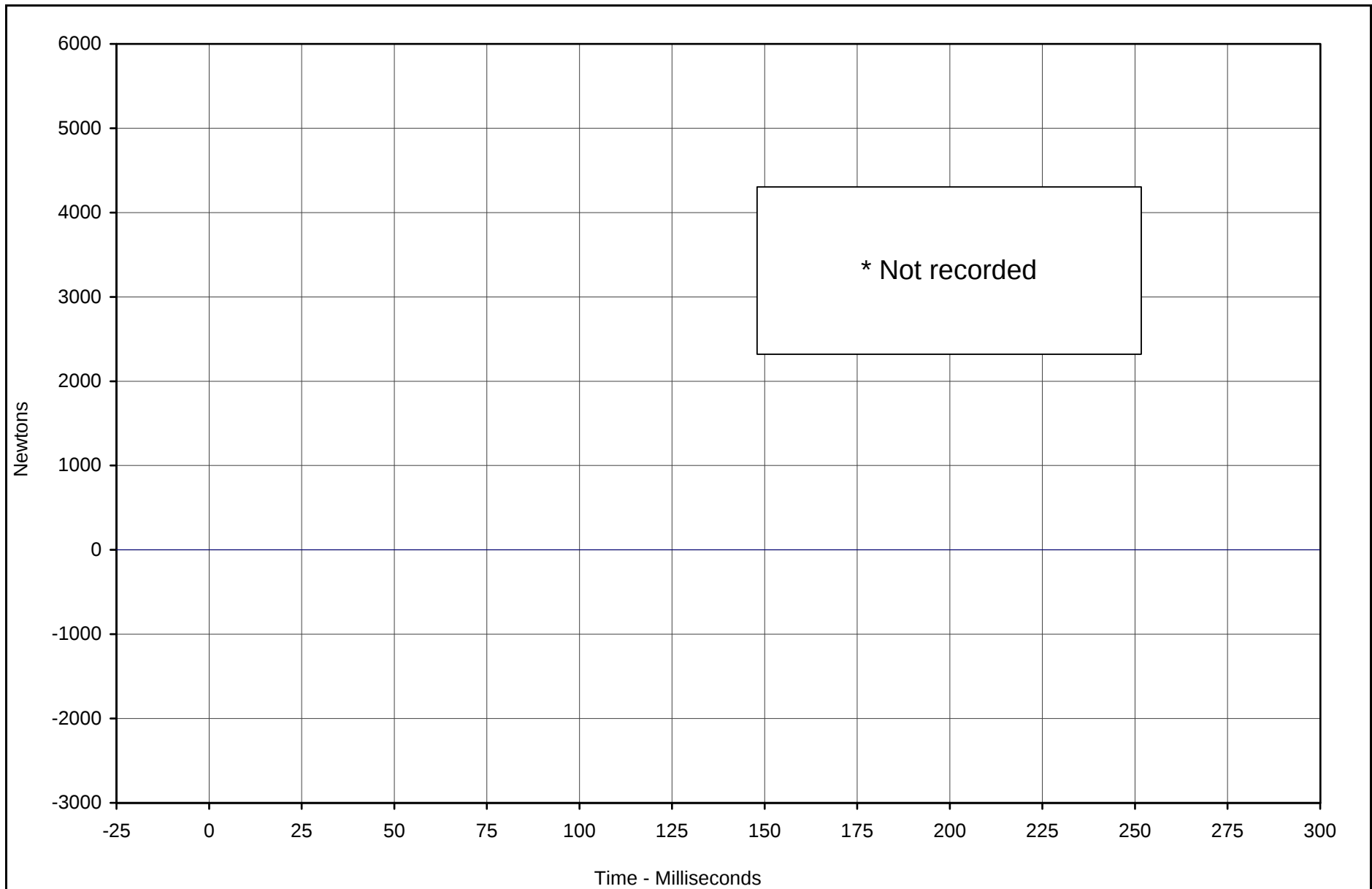
Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

KAR22001-08



* Not recorded

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force C1	116	FIL	Newtons	0.0	0.0	0.0	0.0	60



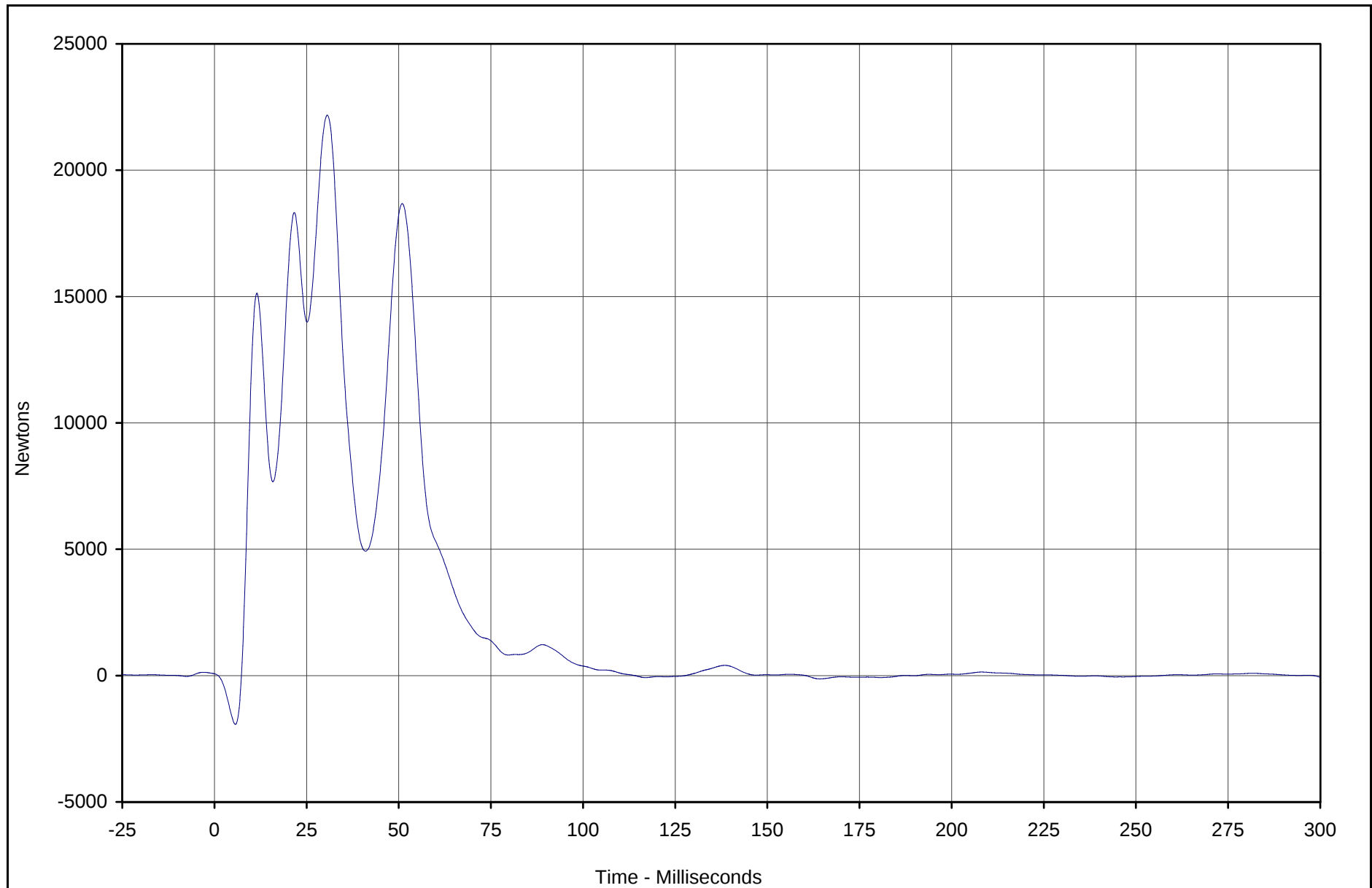
Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

C-20



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force C2	117	FIL	Newtons	22179.3	30.6	-1931.0	5.7	60



Test Vehicle: 2002 Mazda MPV LX Minivan

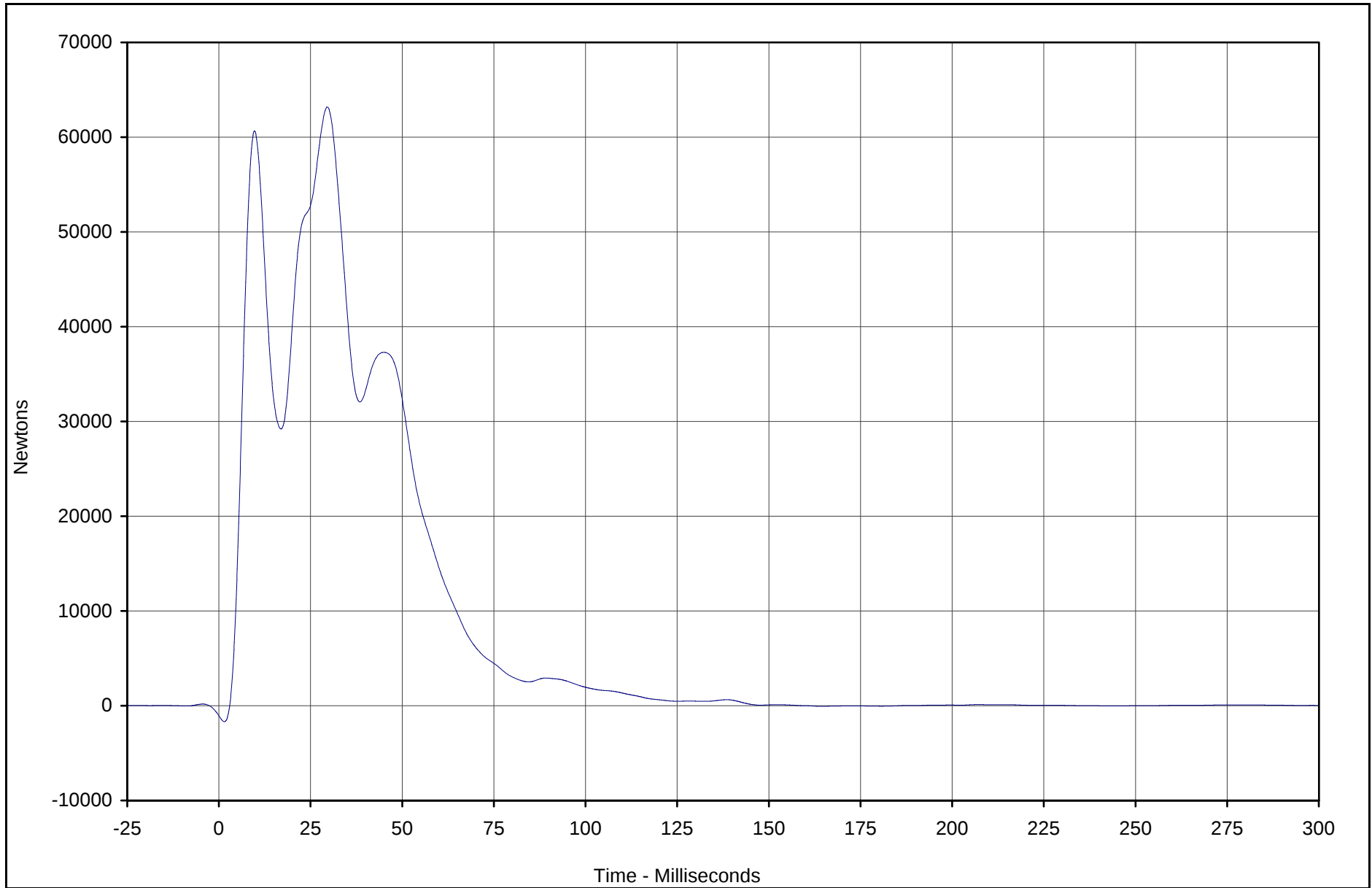
Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

KAR22001-08

C-21



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force C3	118	FIL	Newtons	63179.5	29.6	-1685.2	1.5	60



Test Vehicle: 2002 Mazda MPV LX Minivan

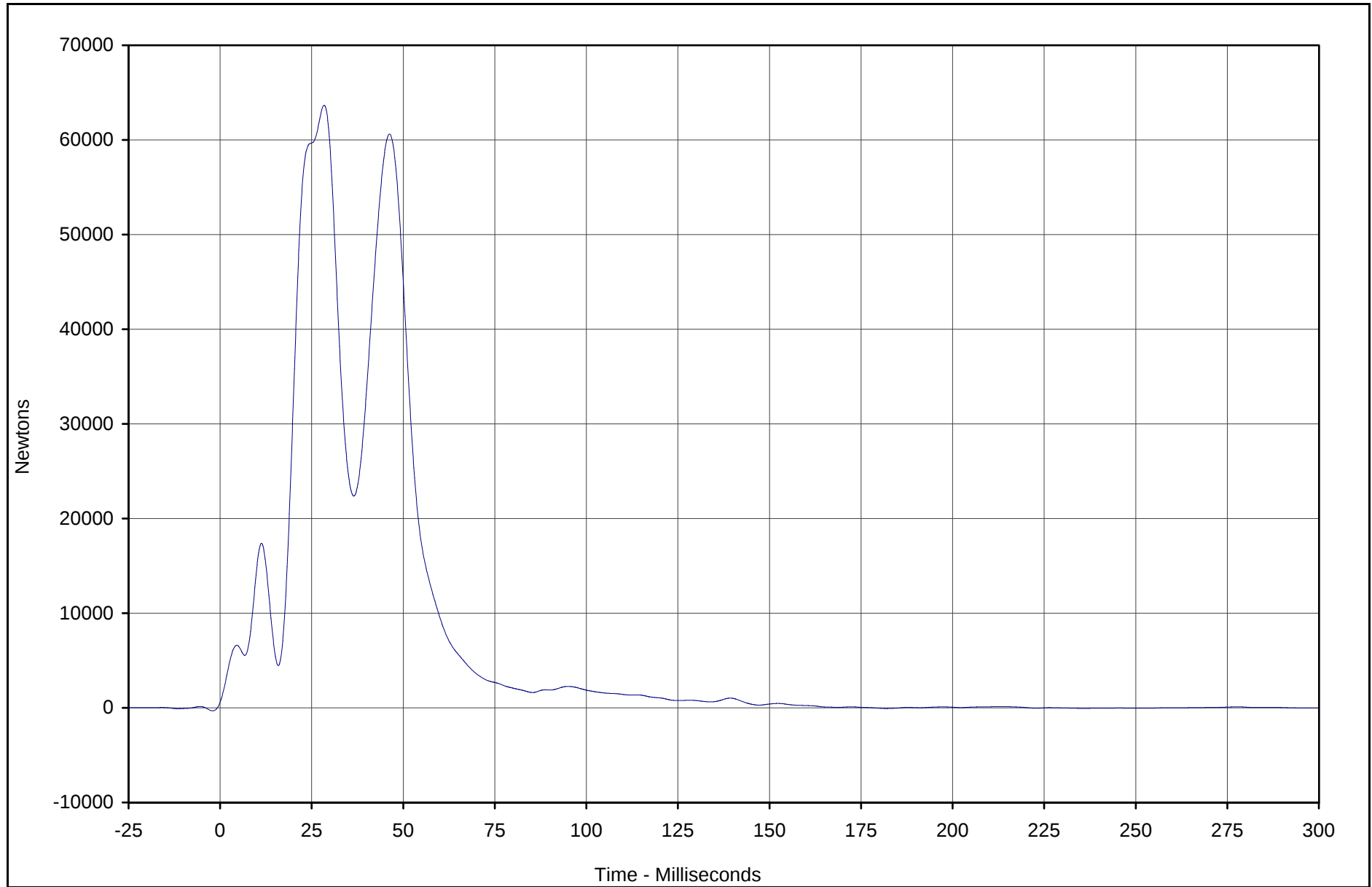
Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

KAR22001-08

C-22



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force C4	119	FIL	Newtons	63666.2	28.4	-73.8	181.8	60



Test Vehicle: 2002 Mazda MPV LX Minivan

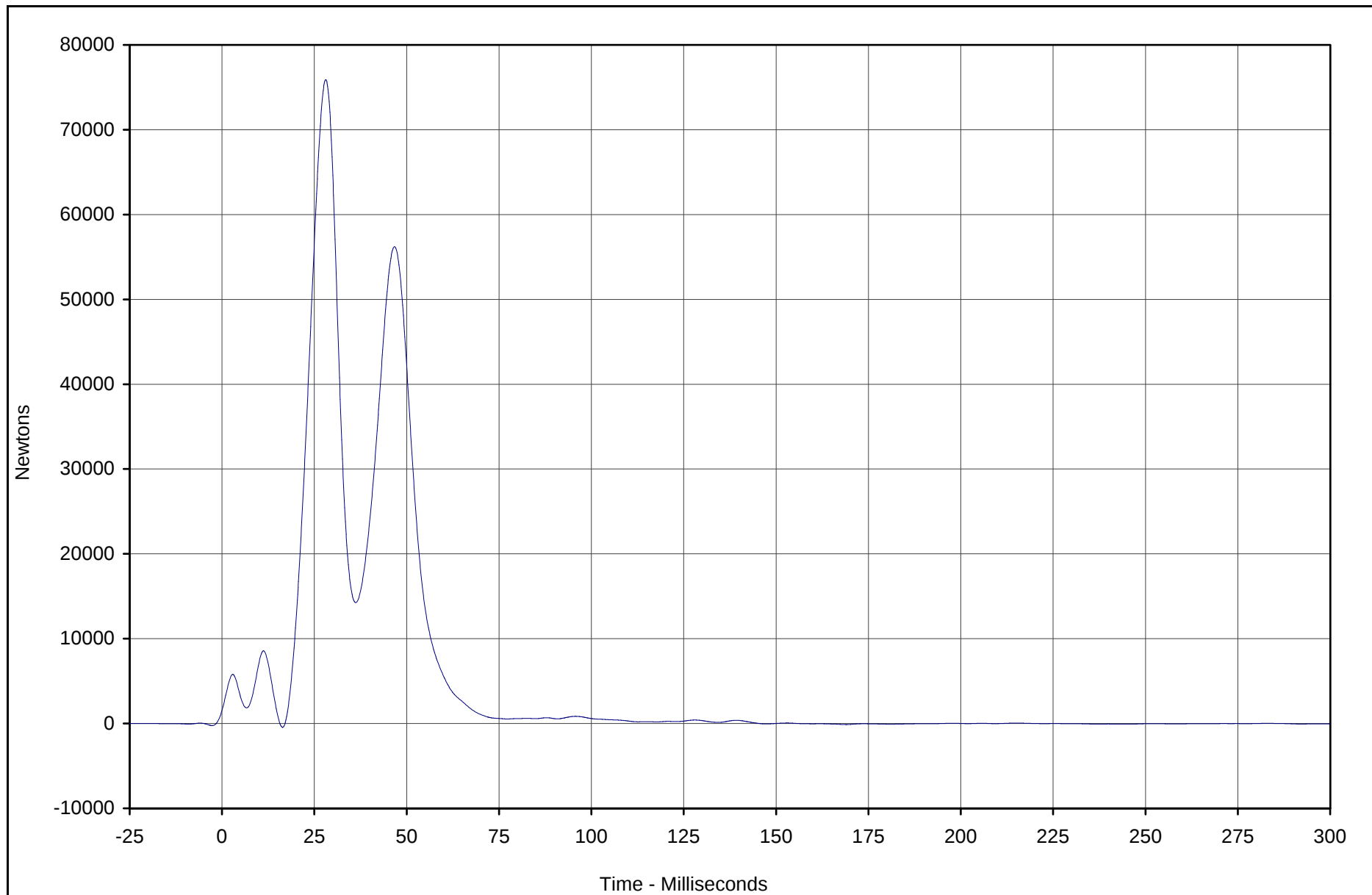
Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

KAR22001-08

C-23



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force C5	120	FIL	Newtons	75897.5	28.1	-450.2	16.4	60

Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

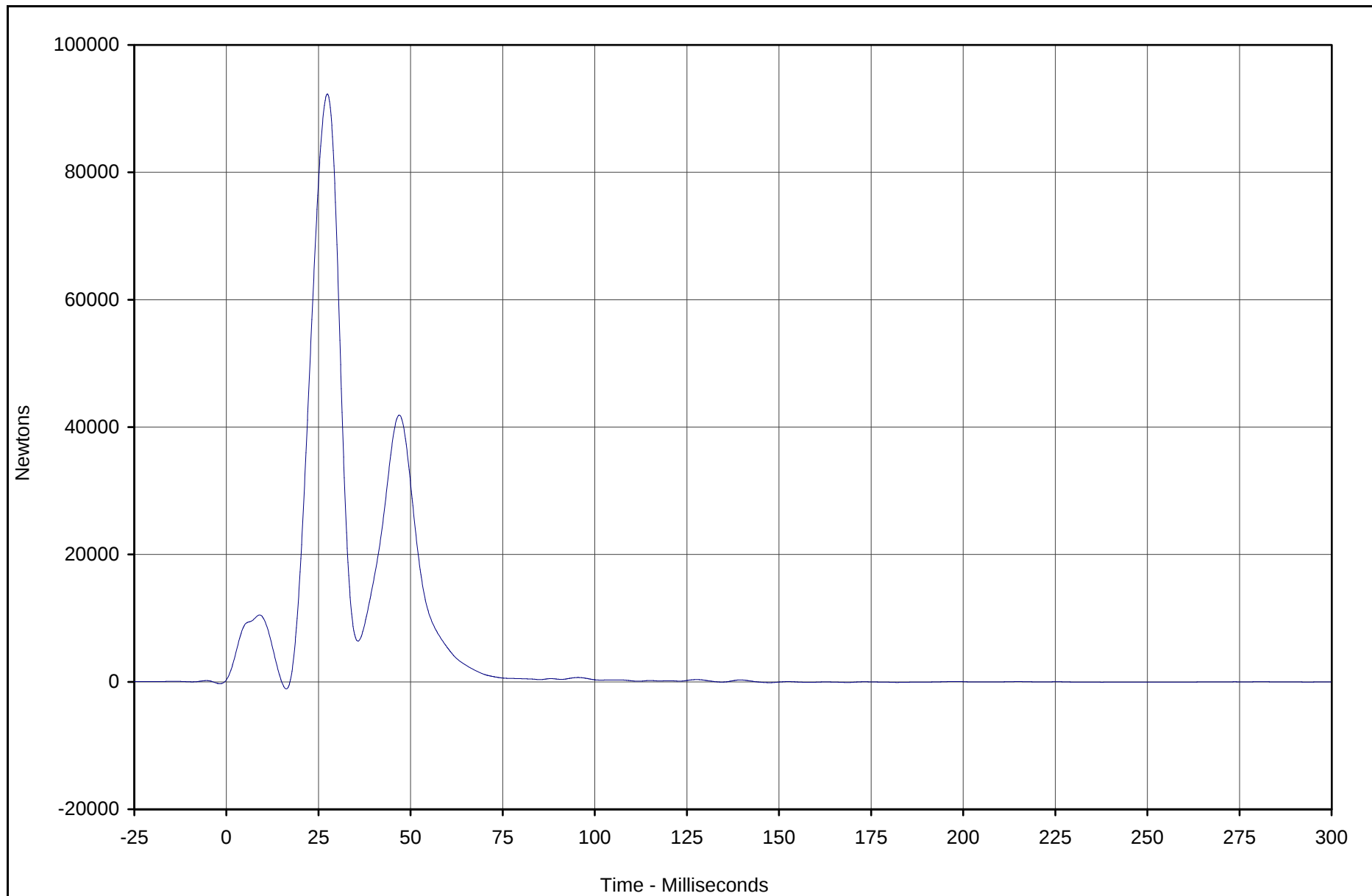
Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



KAR22001-08

C-24



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force C6	121	FIL	Newtons	92288.1	27.4	-1101.8	16.3	60



Test Vehicle: 2002 Mazda MPV LX Minivan

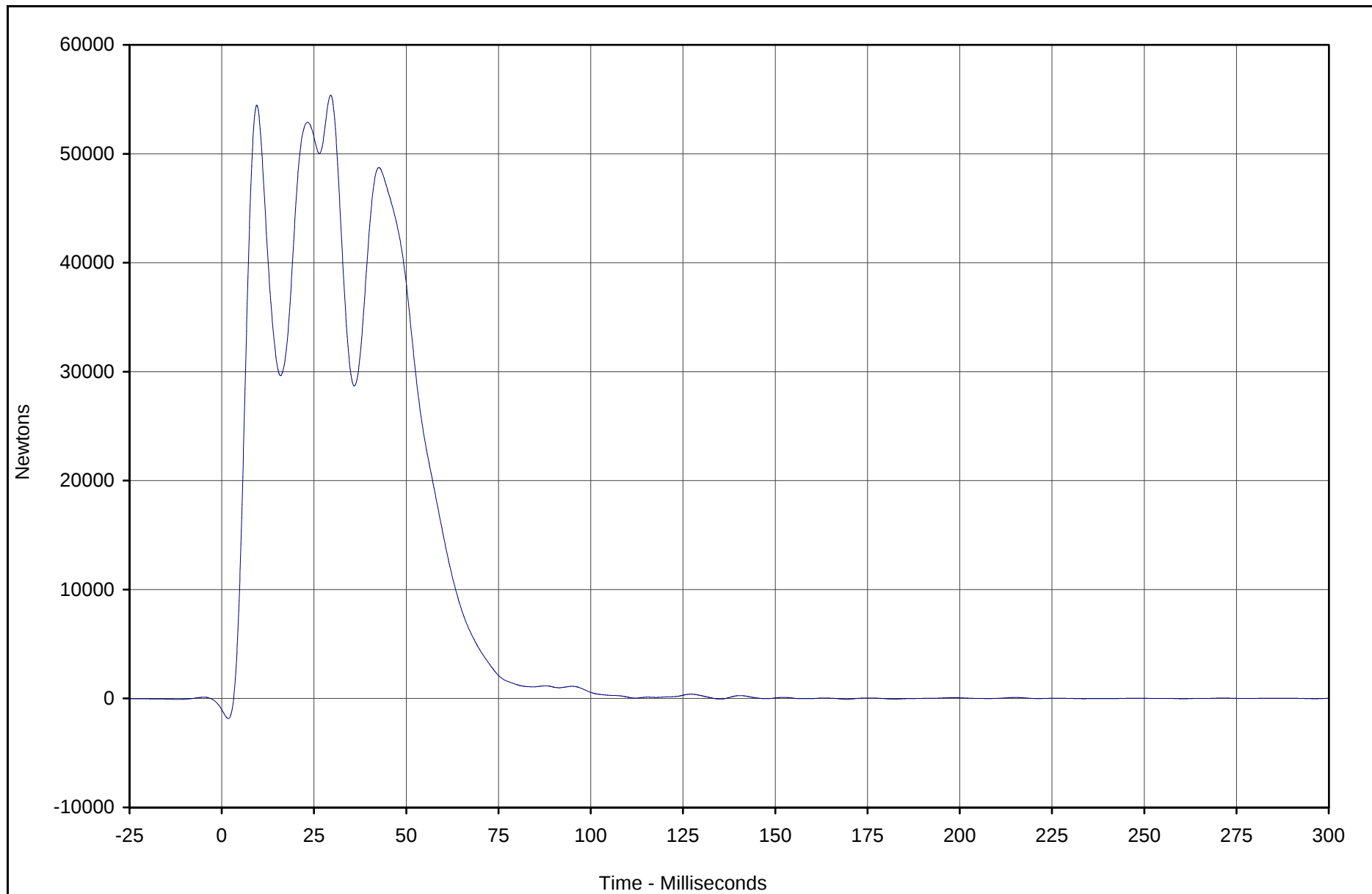
Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

KAR22001-08

C-25



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force C7	122	FIL	Newtons	55385.1	29.5	-1836.6	1.8	60

Test Vehicle: 2002 Mazda MPV LX Minivan

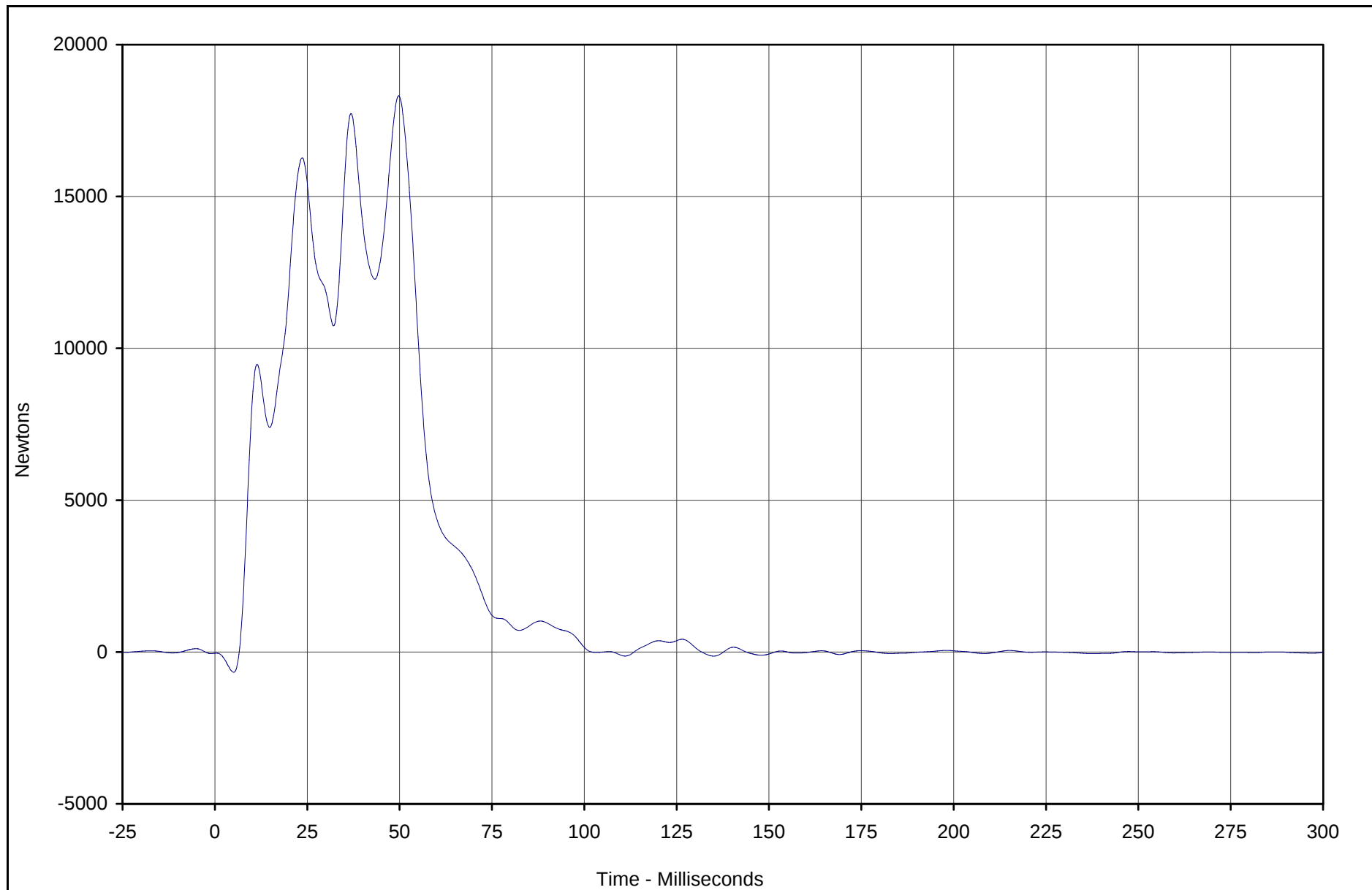
Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



KAR22001-08



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force C8	123	FIL	Newtons	18317.7	49.8	-669.9	5.1	60



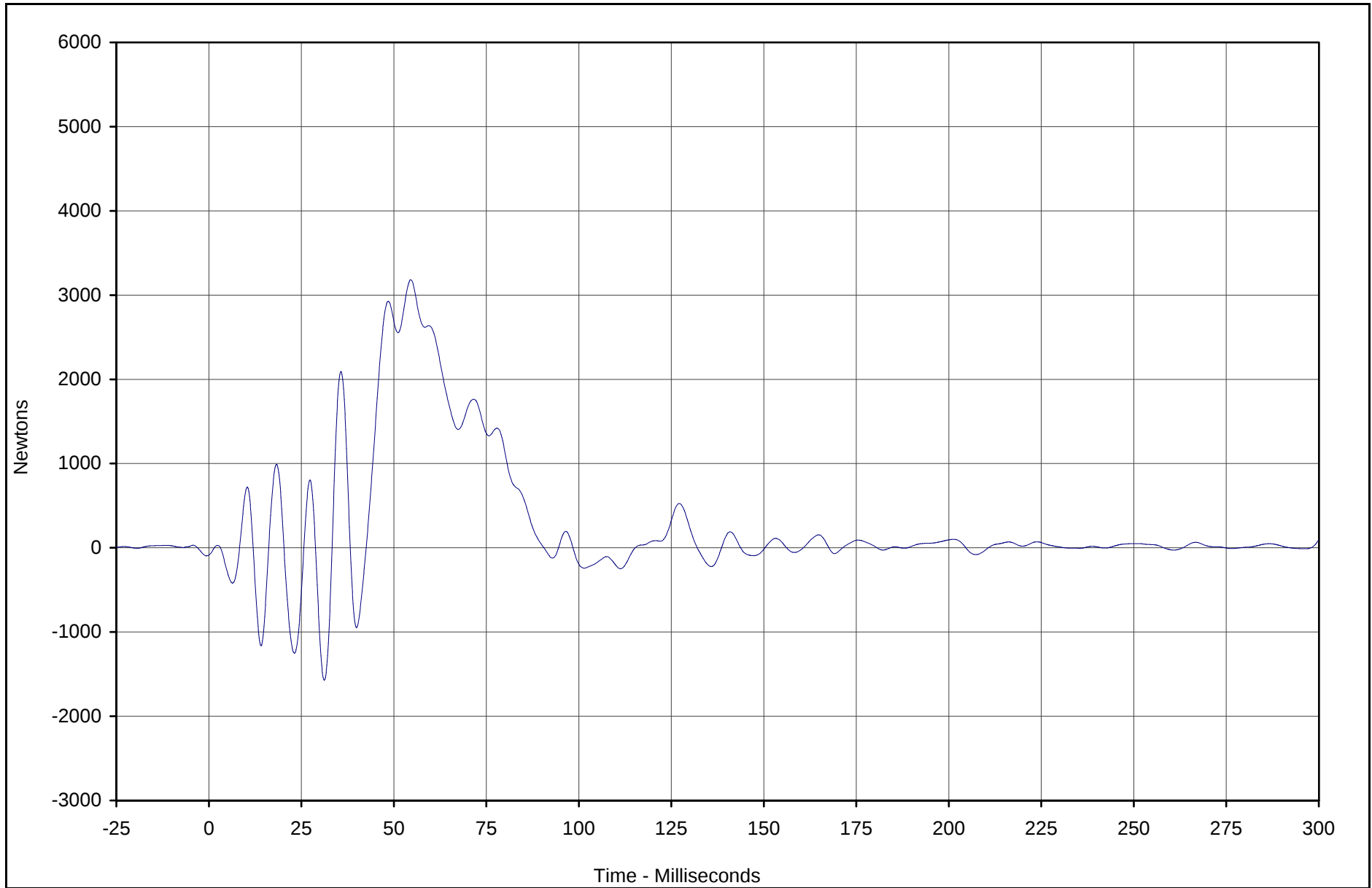
Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

C-27



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force C9	124	FIL	Newtons	3182.5	54.6	-1572.0	31.2	60



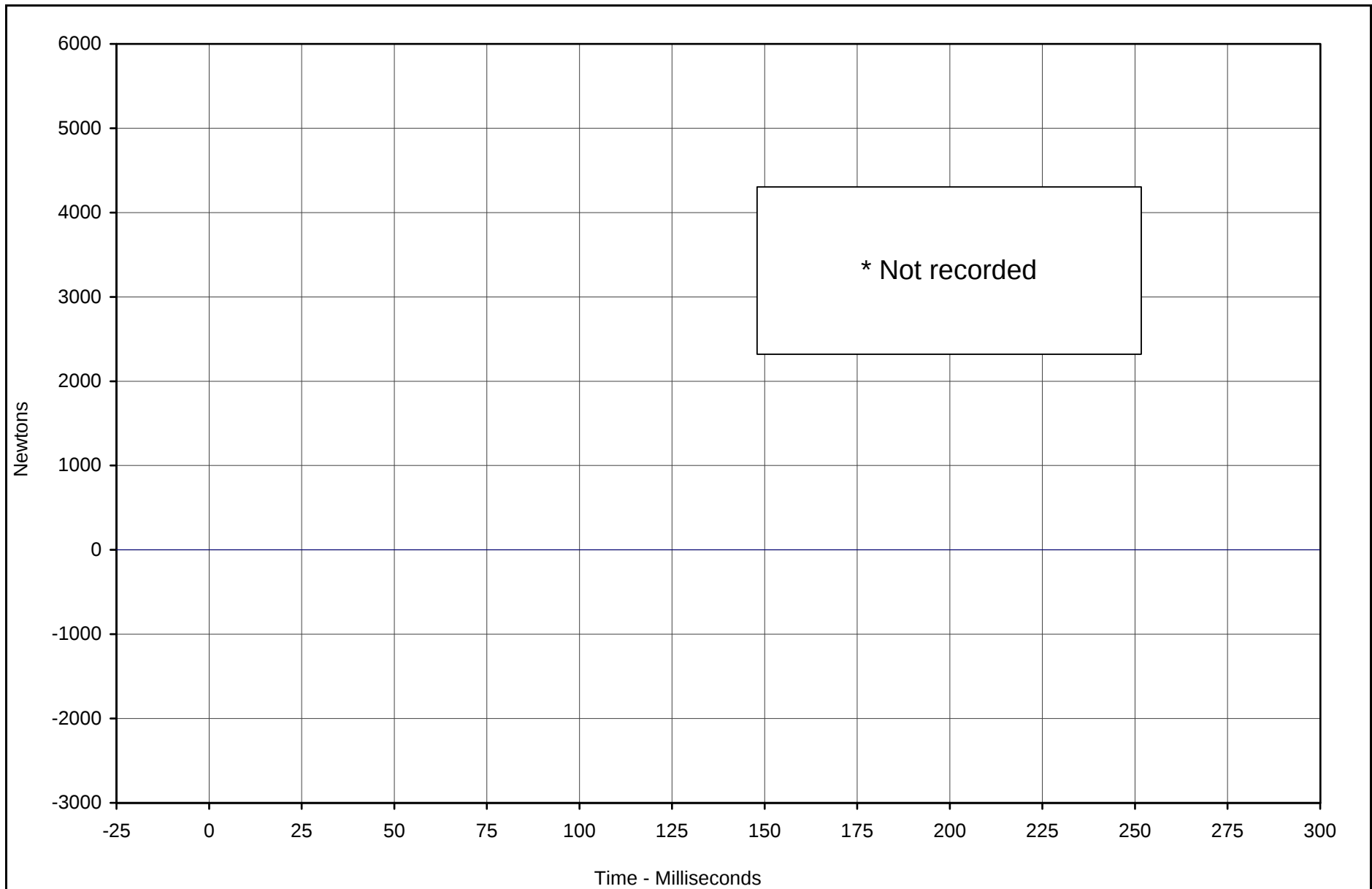
Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

KAR22001-08



* Not recorded

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force D1	125	FIL	Newtons	0.0	0.0	0.0	0.0	60



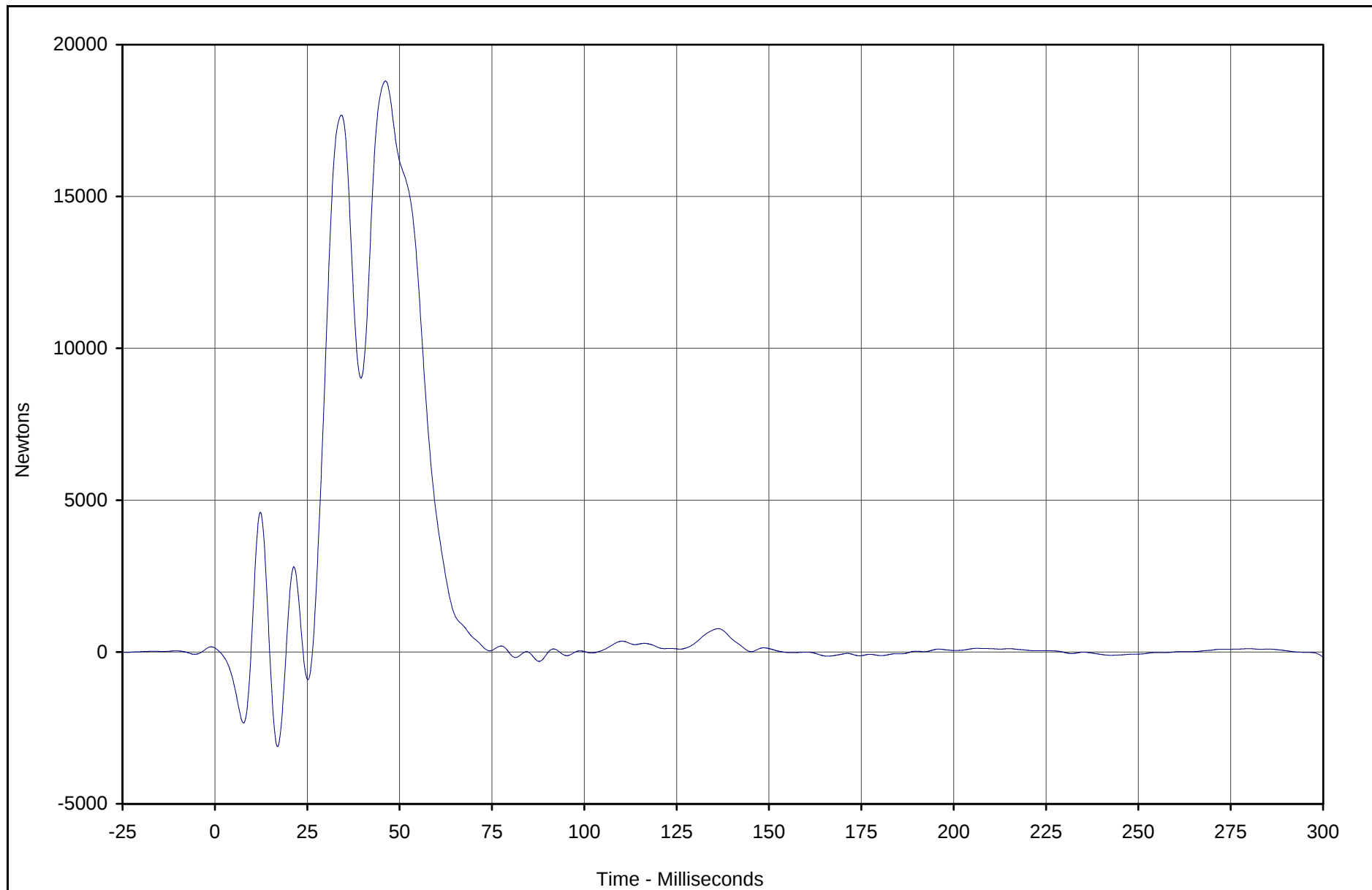
Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

C-29



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force D2	126	FIL	Newtons	18803.7	46.2	-3113.7	17.0	60



Test Vehicle: 2002 Mazda MPV LX Minivan

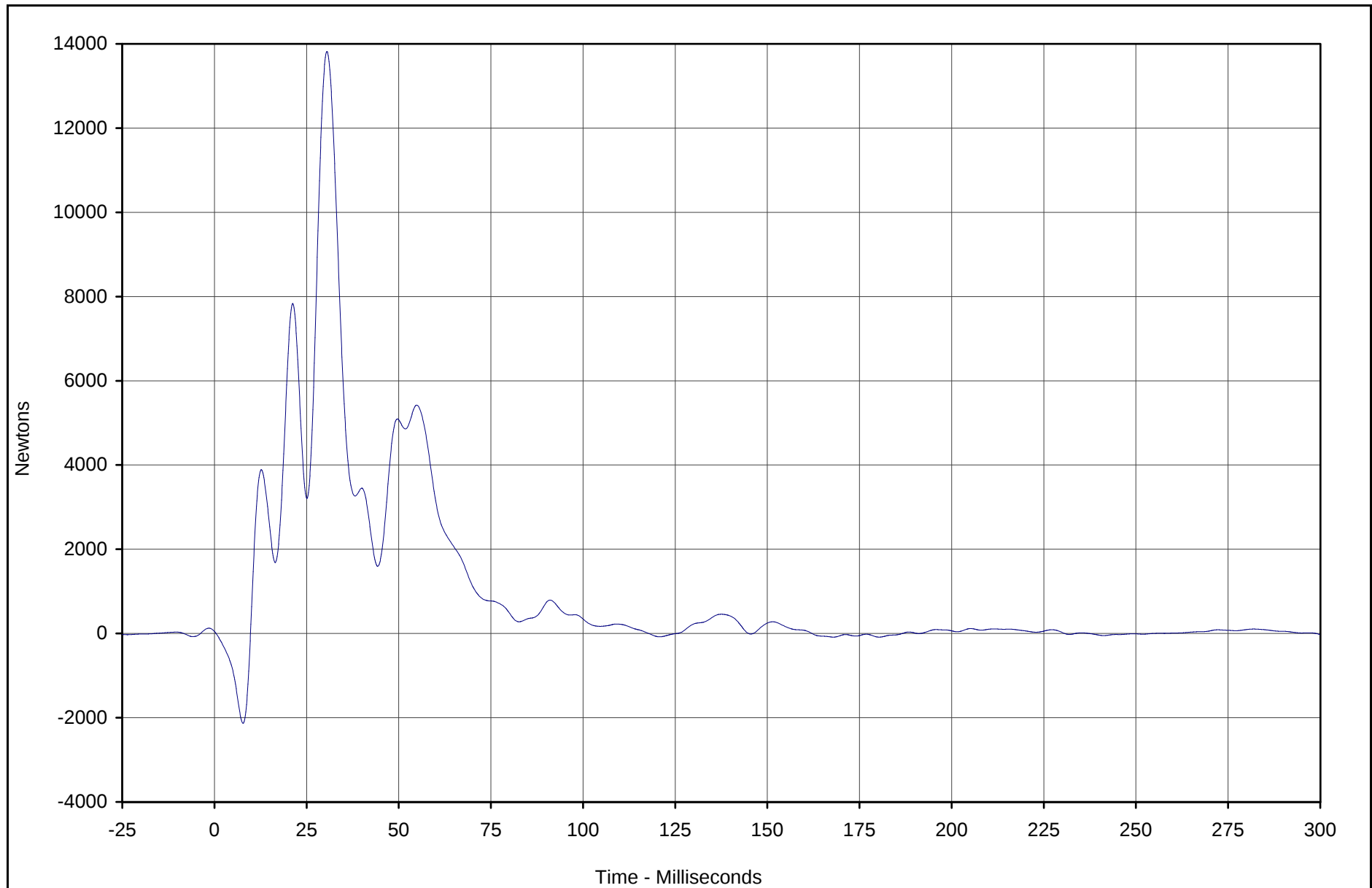
Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

KAR22001-08

C-30



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force D3	127	FIL	Newtons	13819.8	30.5	-2134.7	7.8	60



Test Vehicle: 2002 Mazda MPV LX Minivan

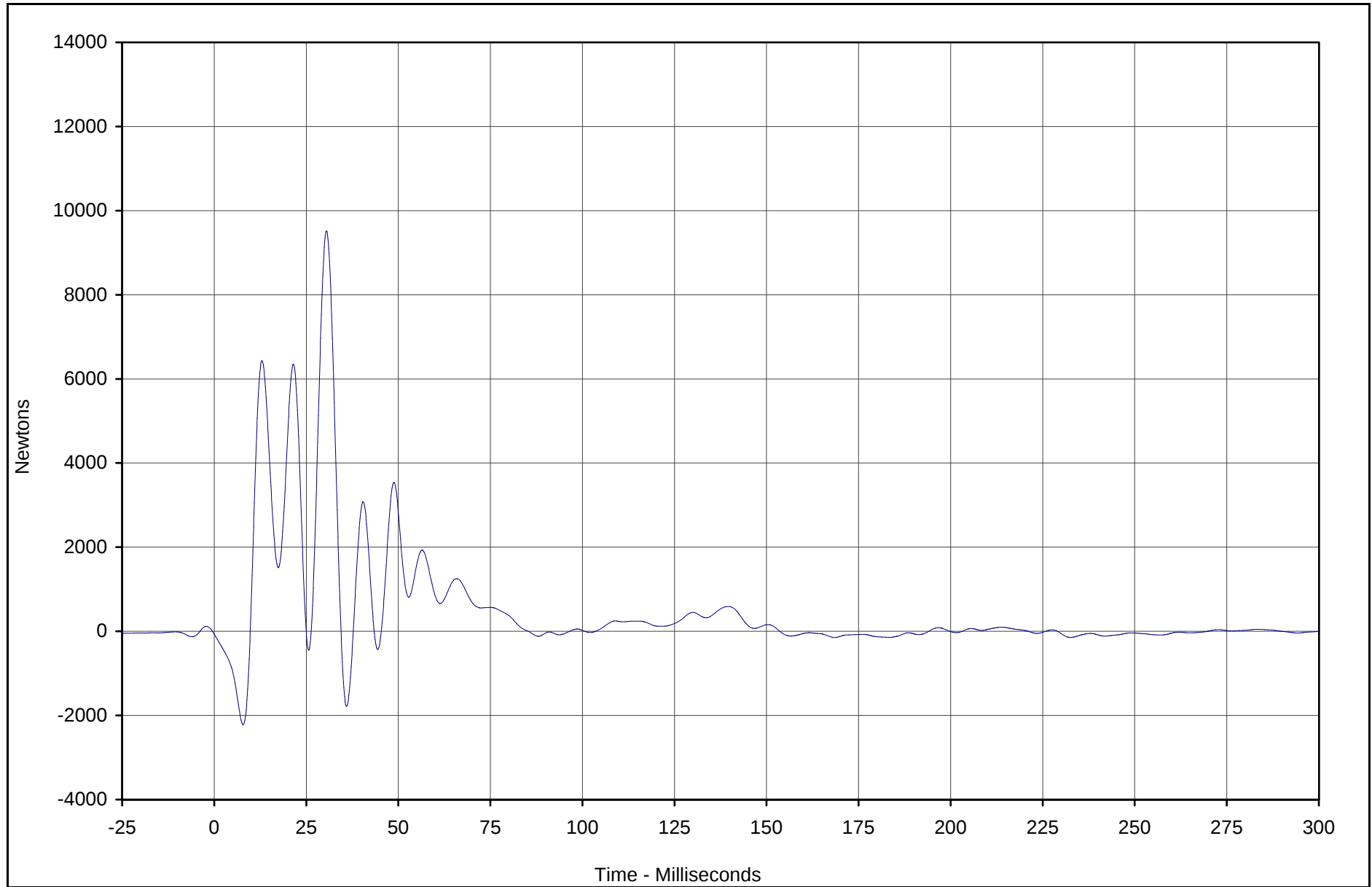
Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

KAR22001-08

C-31



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force D4	128	FIL	Newtons	9520.6	30.5	-2222.3	7.8	60



Test Vehicle: 2002 Mazda MPV LX Minivan

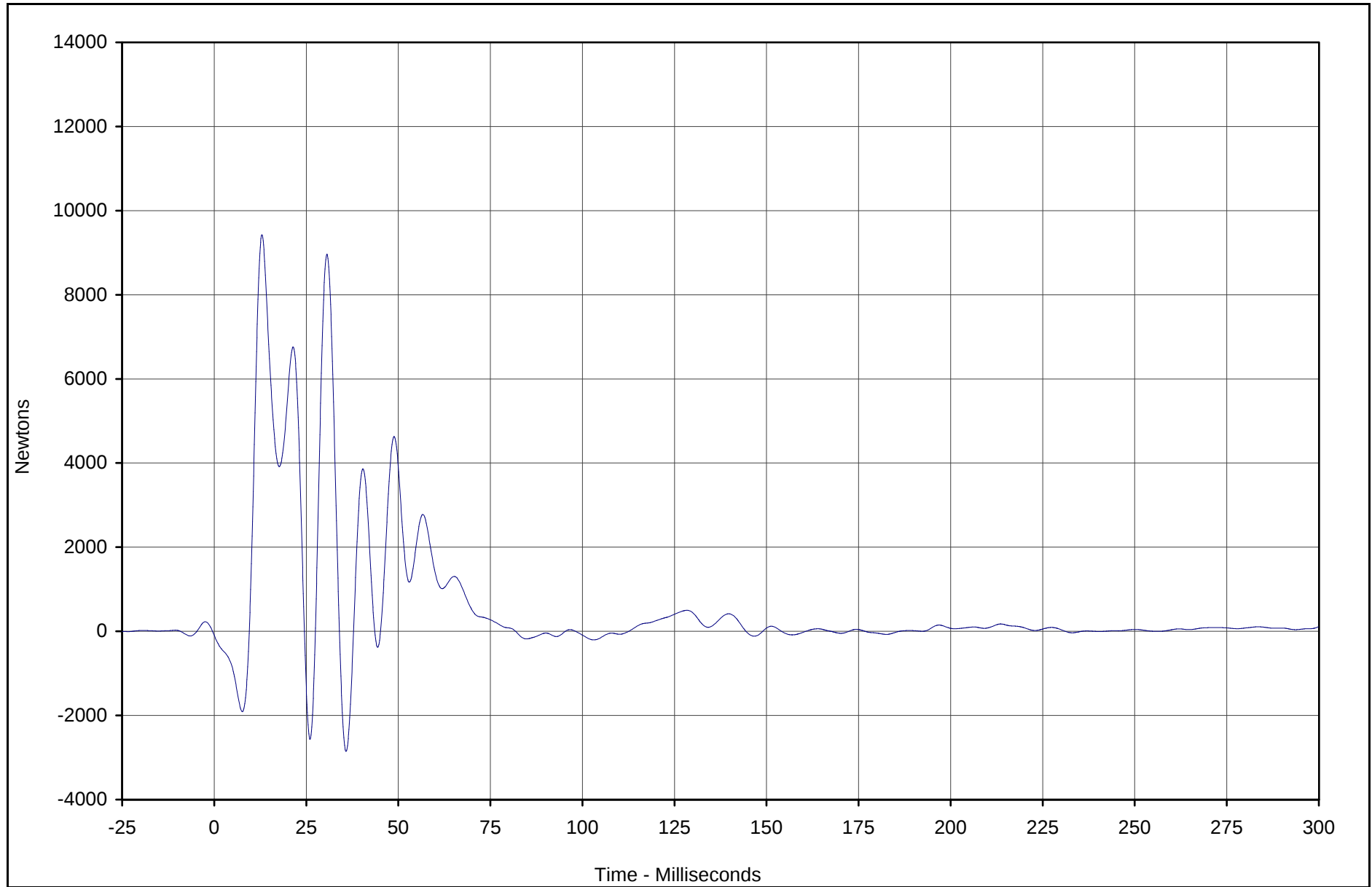
Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

KAR22001-08

C-32



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force D5	129	FIL	Newtons	9426.1	13.0	-2854.9	35.8	60



Test Vehicle: 2002 Mazda MPV LX Minivan

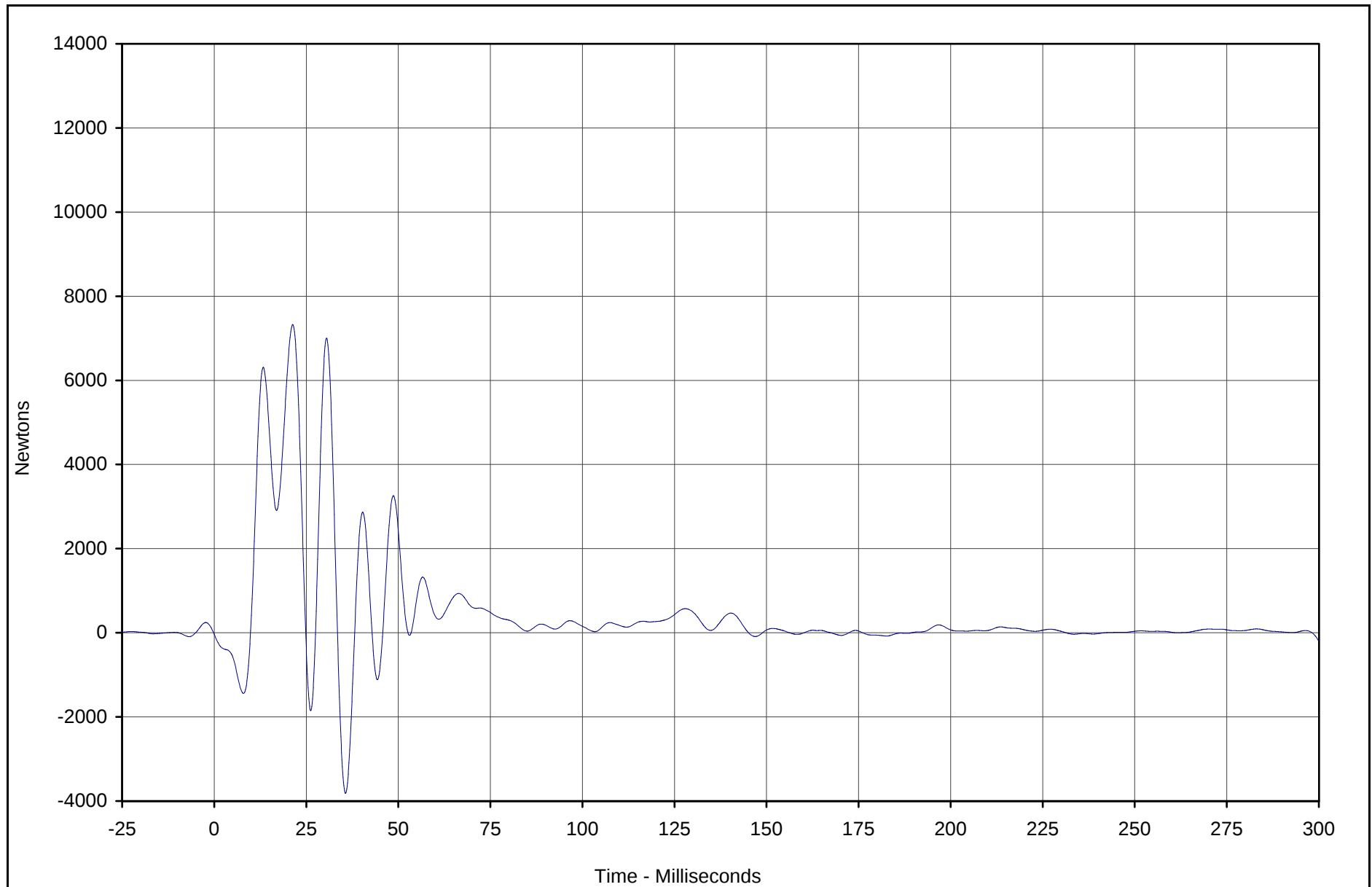
Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

KAR22001-08

C-33



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force D6	130	FIL	Newtons	7327.7	21.3	-3817.3	35.7	60

Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

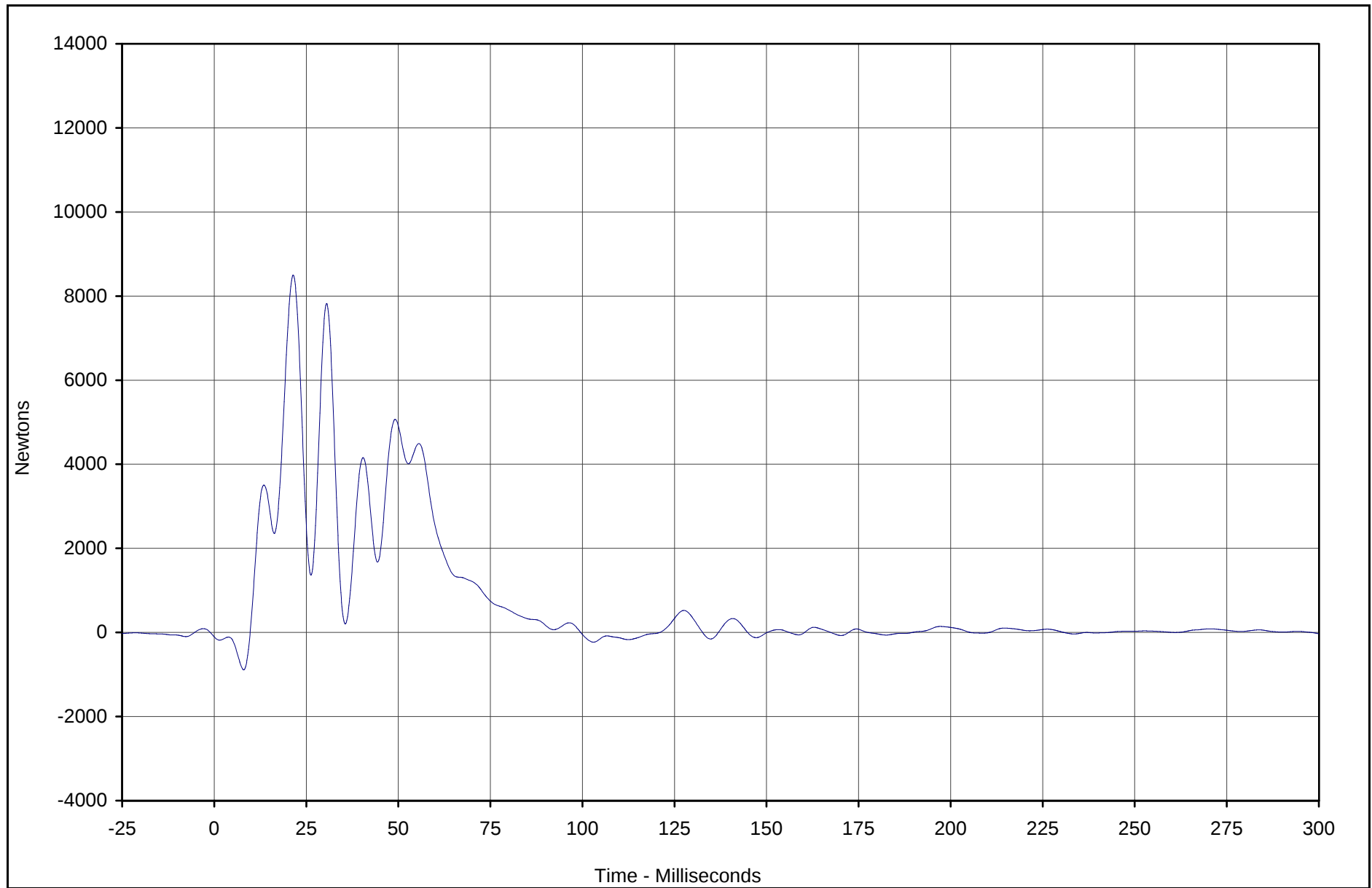
Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



KAR22001-08

C-34



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force D7	131	FIL	Newtons	8499.6	21.4	-889.9	8.0	60



Test Vehicle: 2002 Mazda MPV LX Minivan

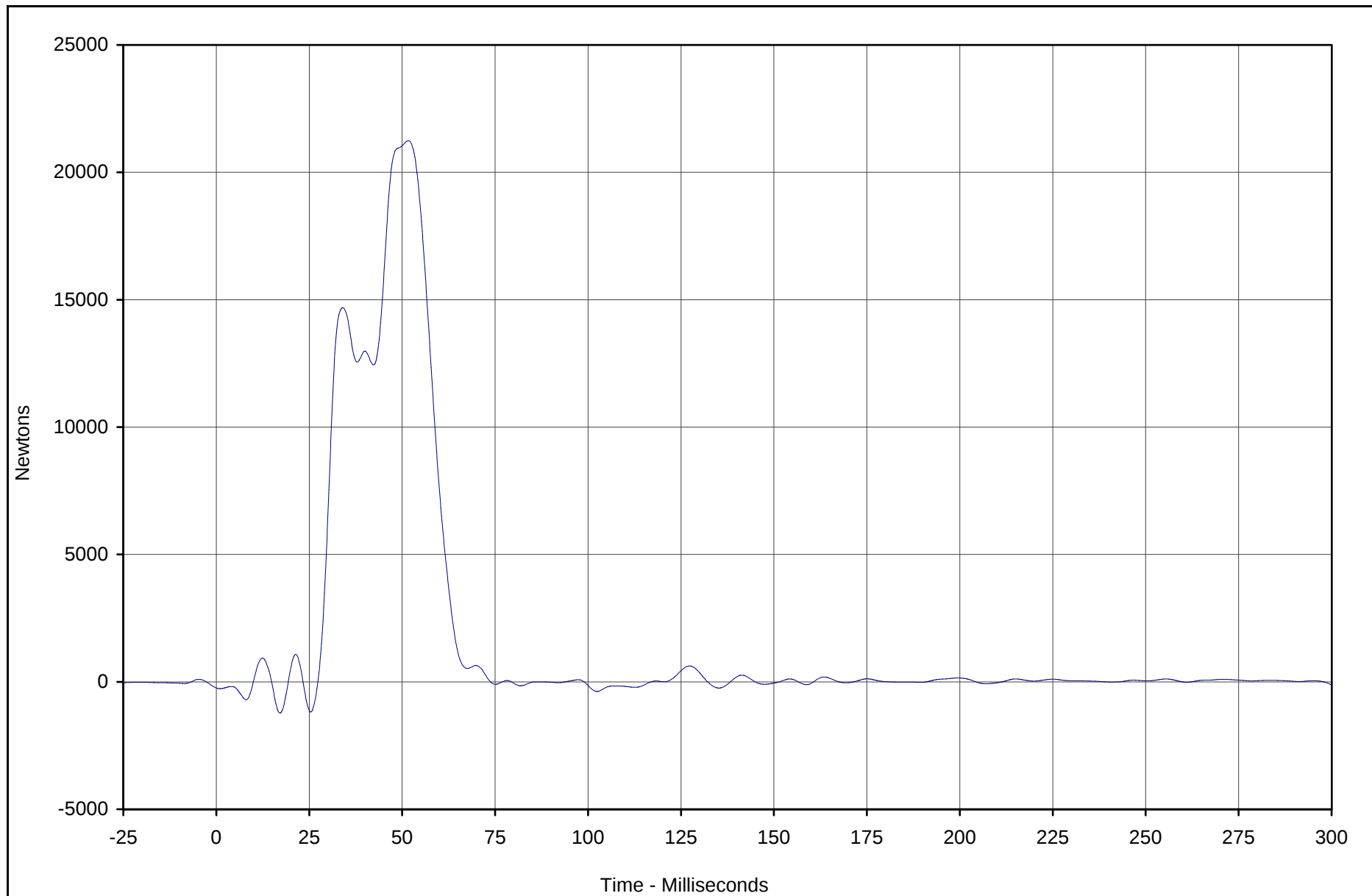
Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

KAR22001-08

C-35



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force D8	132	FIL	Newtons	21244.9	51.6	-1223.4	17.1	60



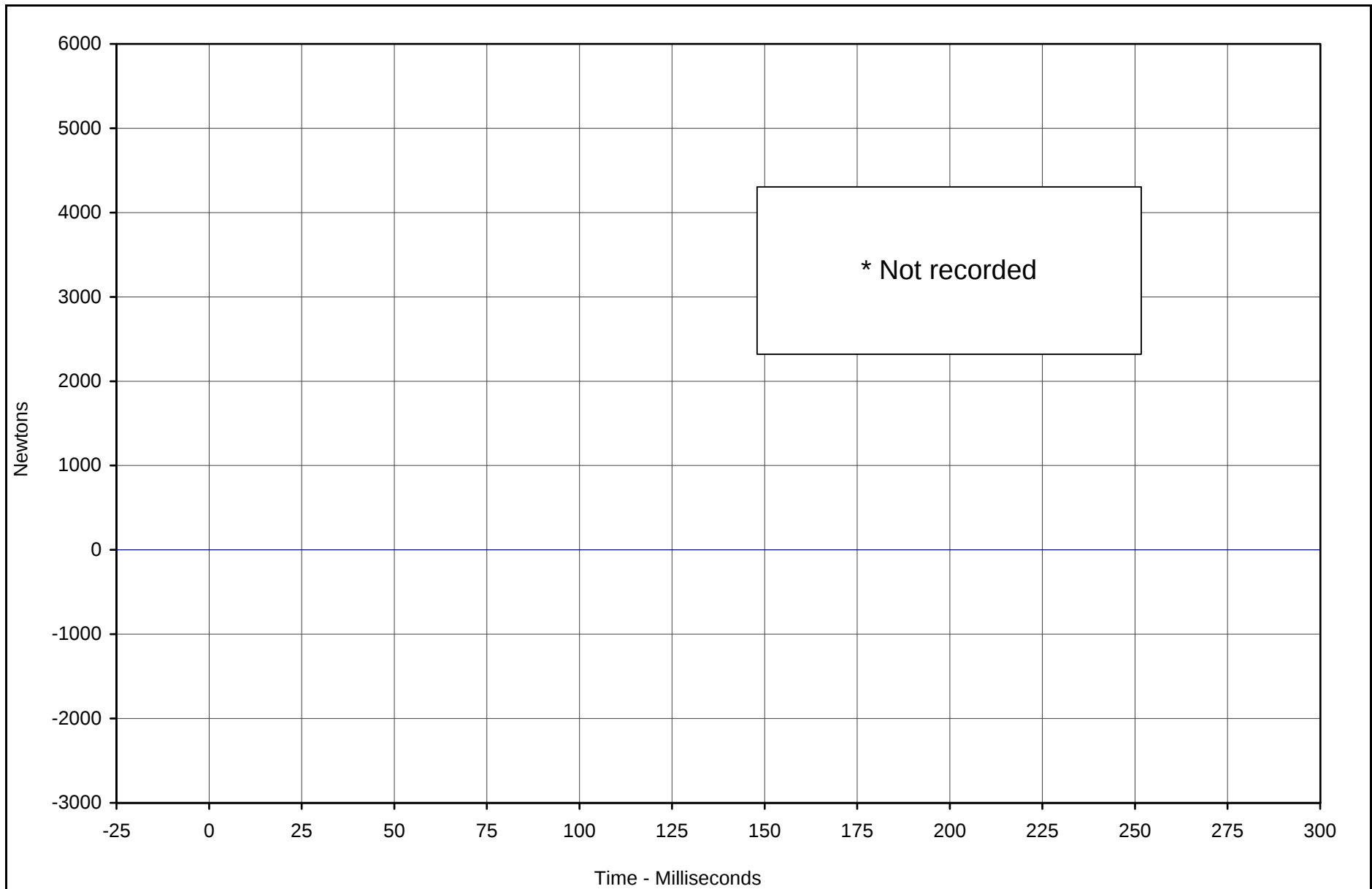
Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

KAR22001-08



* Not recorded

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force D9	133	FIL	Newtons	0.0	0.0	0.0	0.0	60



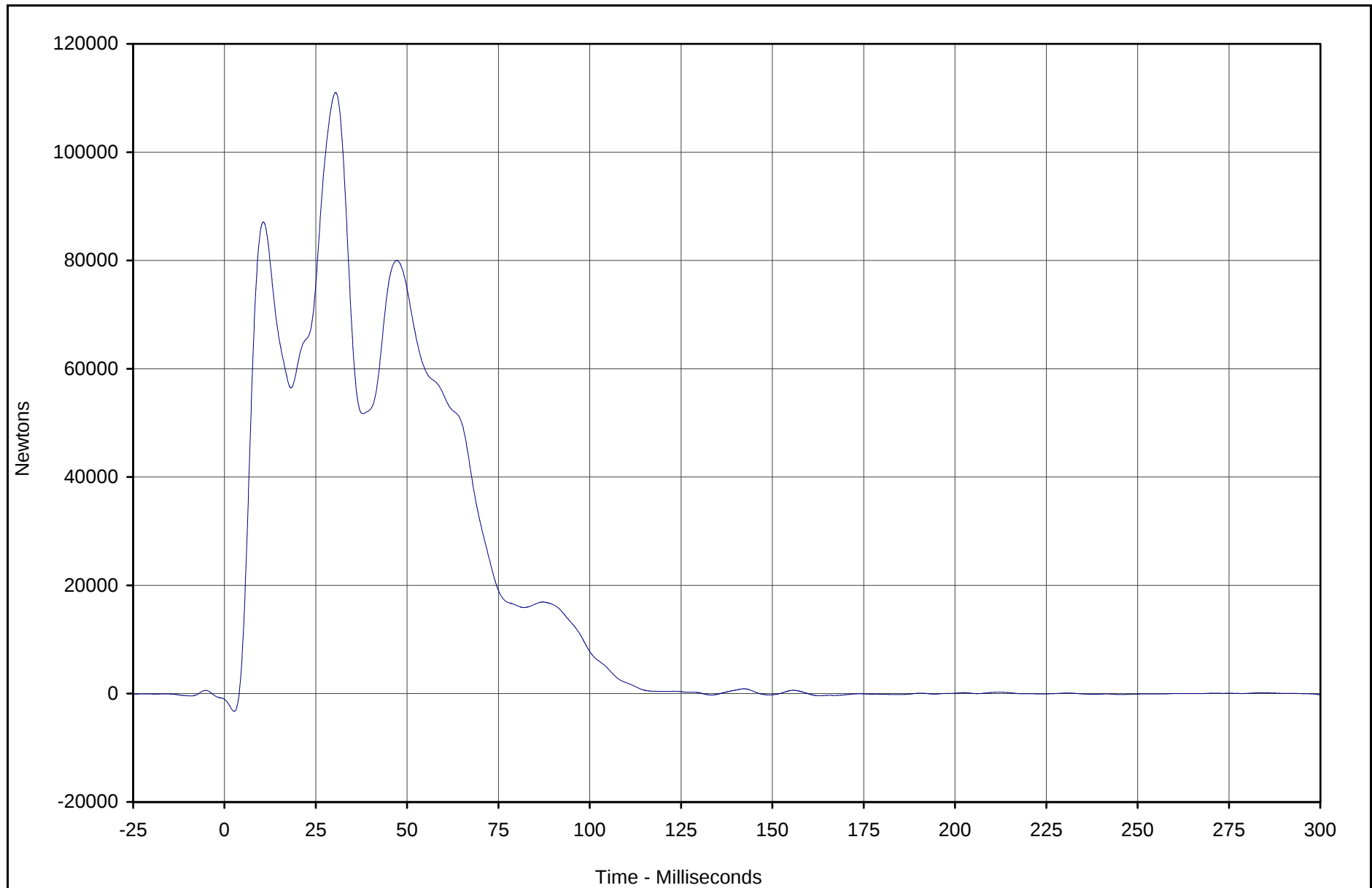
Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

C-37



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force Sum Group 1	001	SUM	Newtons	111002.8	30.4	-3270.0	2.7	60



Test Vehicle: 2002 Mazda MPV LX Minivan

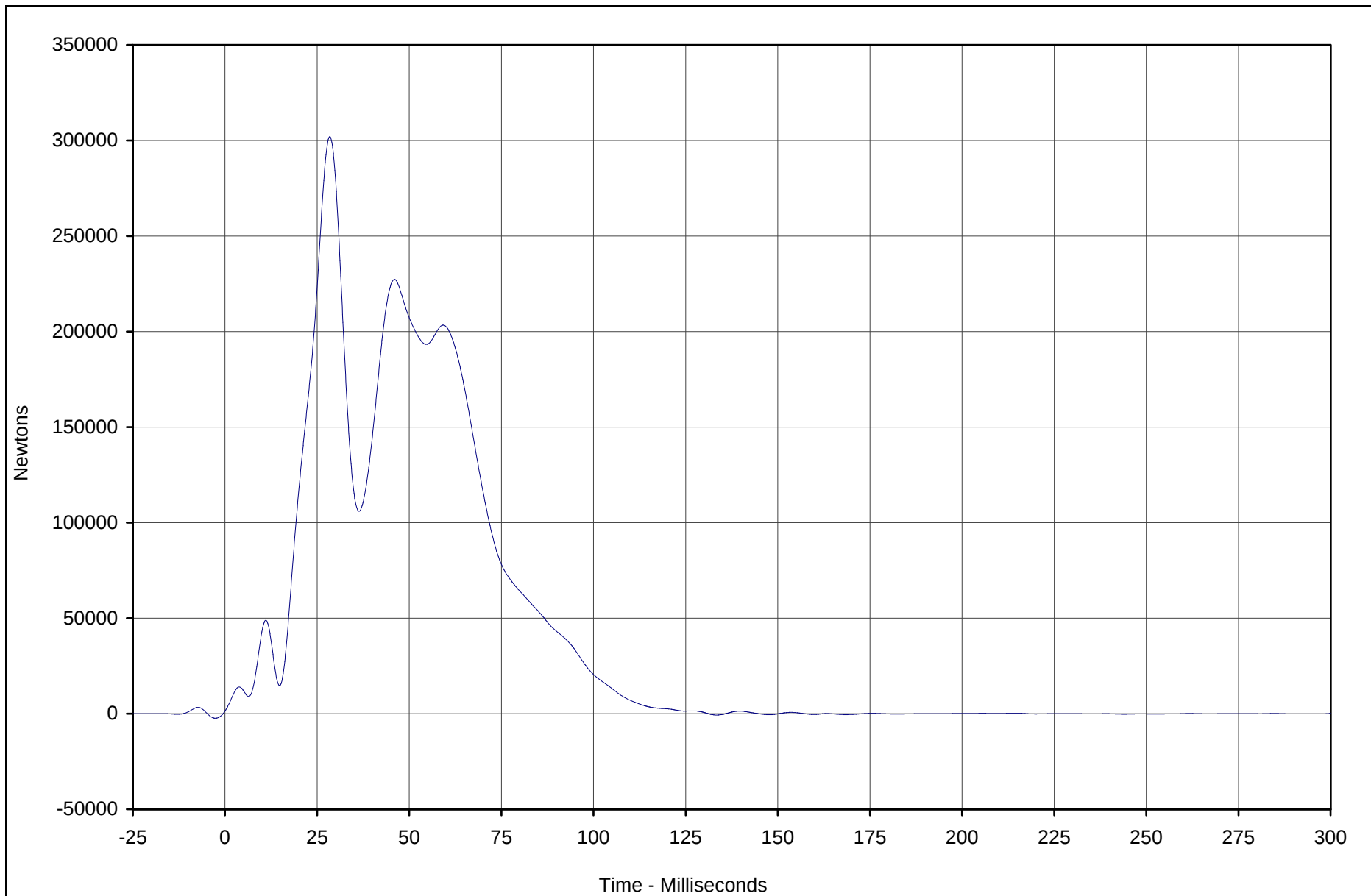
Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

KAR22001-08

C-38



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force Sum Group 2	002	SUM	Newtons	302019.9	28.4	-711.3	133.4	60



Test Vehicle: 2002 Mazda MPV LX Minivan

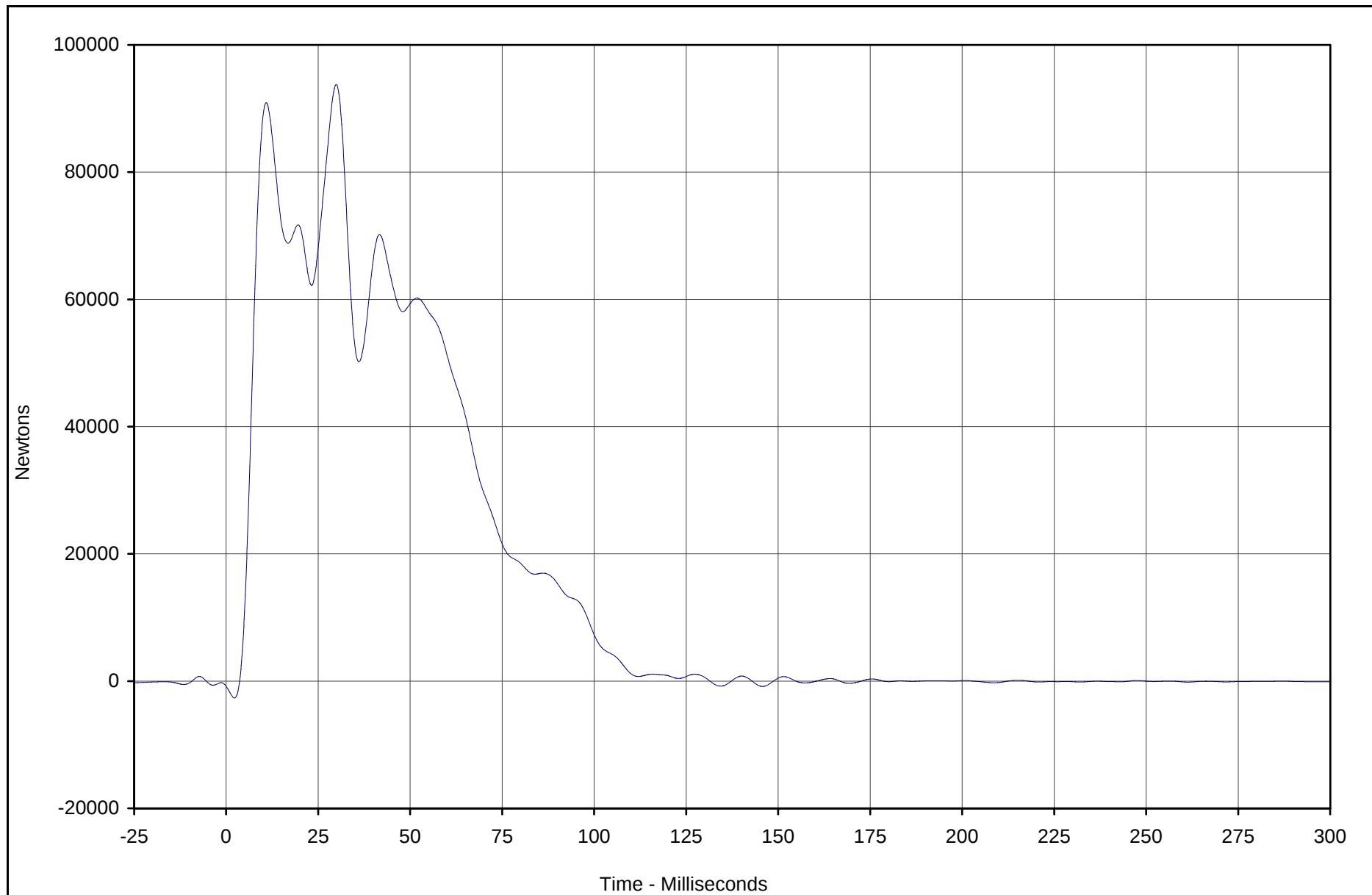
Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

KAR22001-08

C-39



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force Sum Group 3	003	SUM	Newtons	93766.3	29.9	-2653.1	2.2	60



Test Vehicle: 2002 Mazda MPV LX Minivan

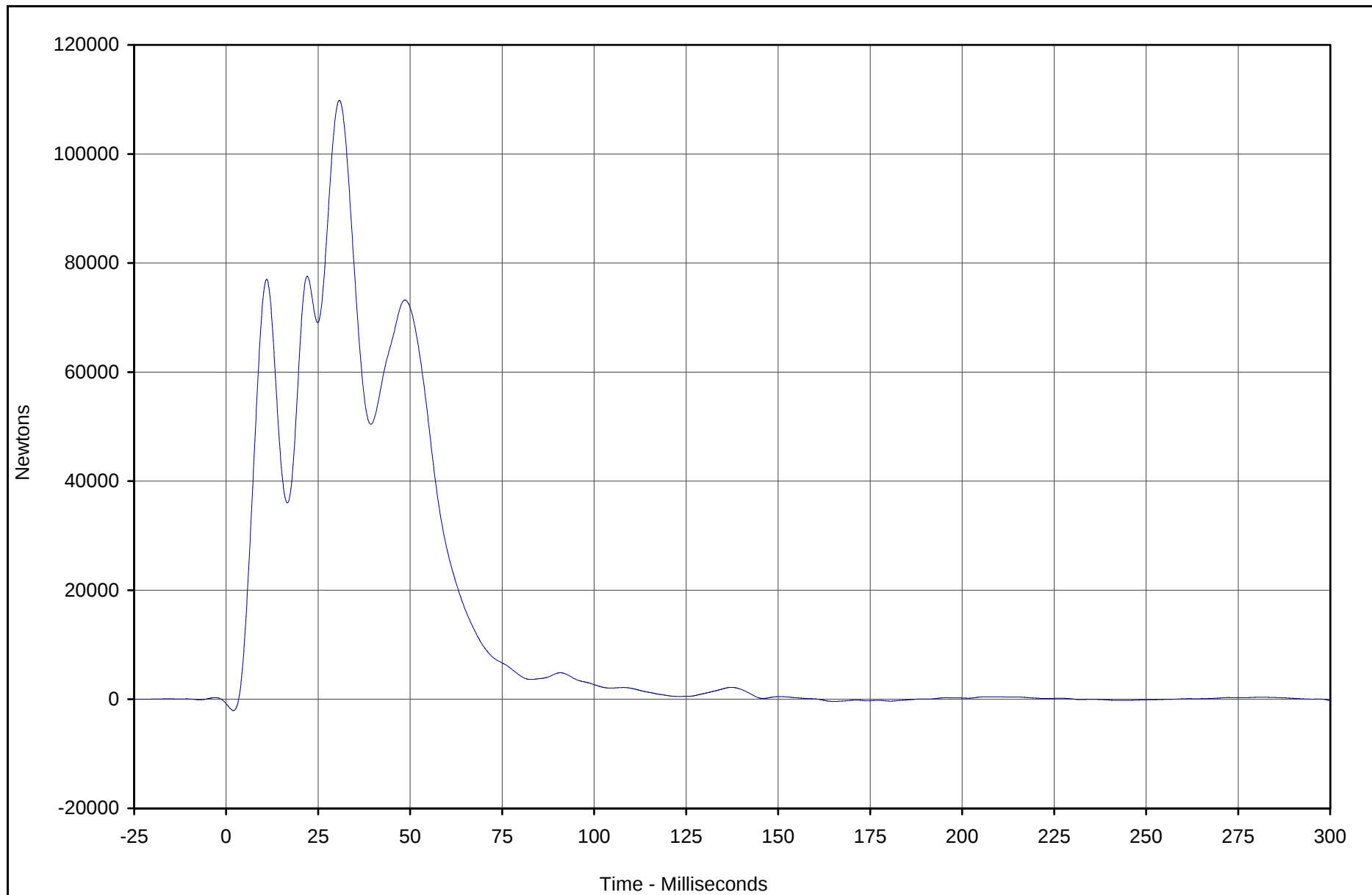
Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

KAR22001-08

C-40



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force Sum Group 4	004	SUM	Newtons	109845.0	30.8	-2061.2	2.0	60



Test Vehicle: 2002 Mazda MPV LX Minivan

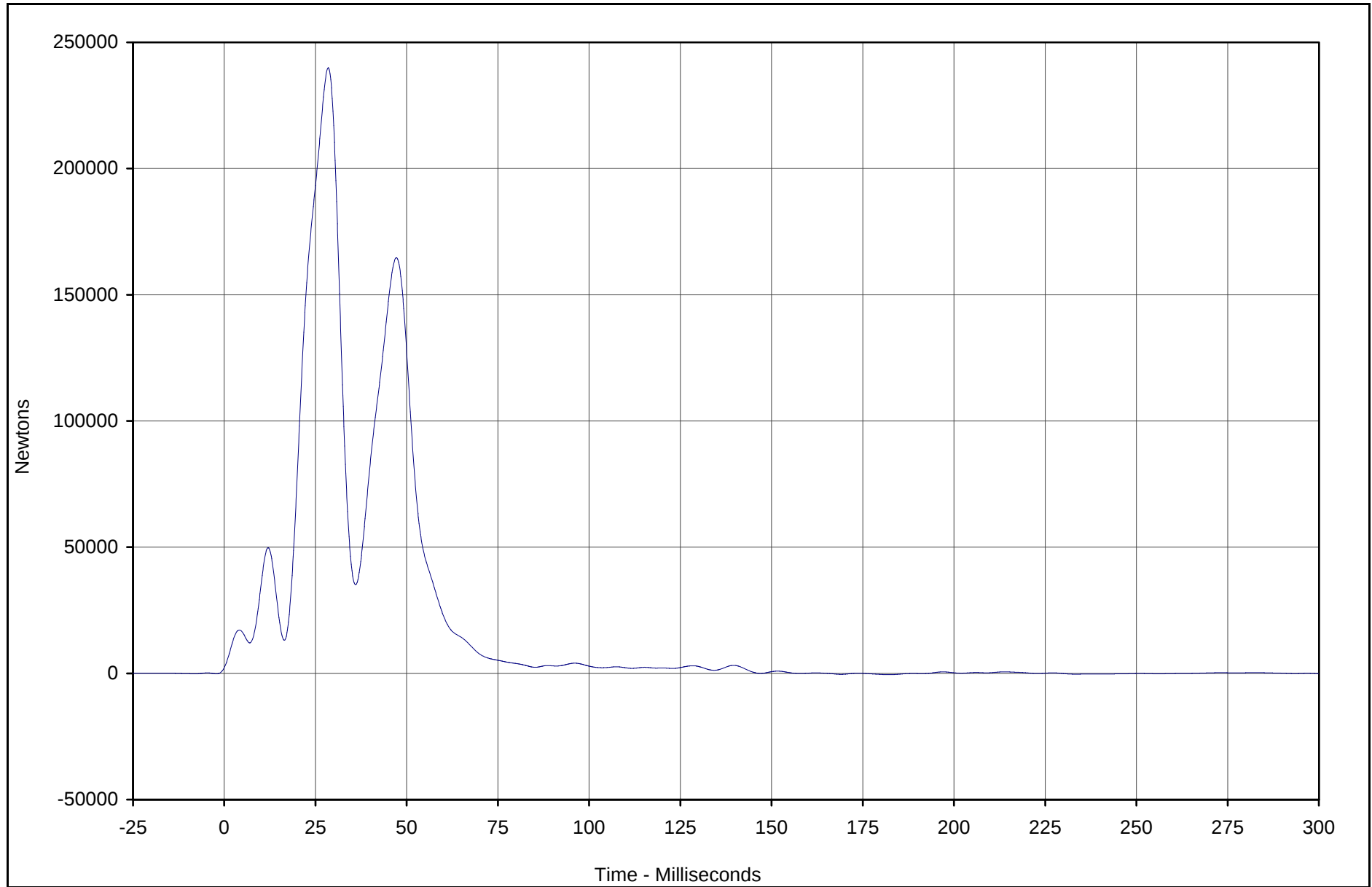
Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

KAR22001-08

C-41



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force Sum Group 5	005	SUM	Newtons	239953.2	28.5	-524.8	182.1	60



Test Vehicle: 2002 Mazda MPV LX Minivan

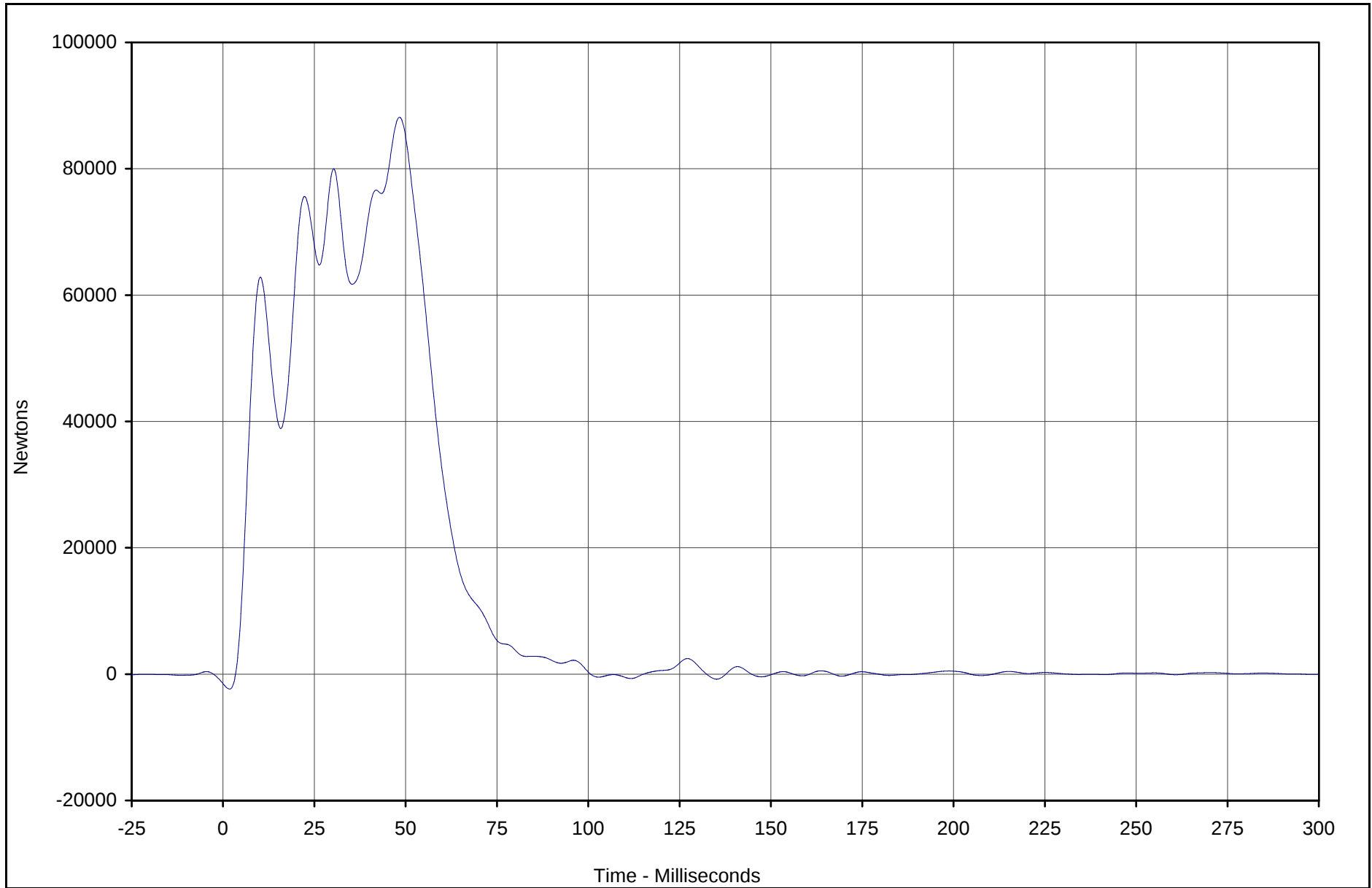
Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

KAR22001-08

C-42



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force Sum Group 6	006	SUM	Newtons	88154.0	48.3	-2365.1	1.8	60



Test Vehicle: 2002 Mazda MPV LX Minivan

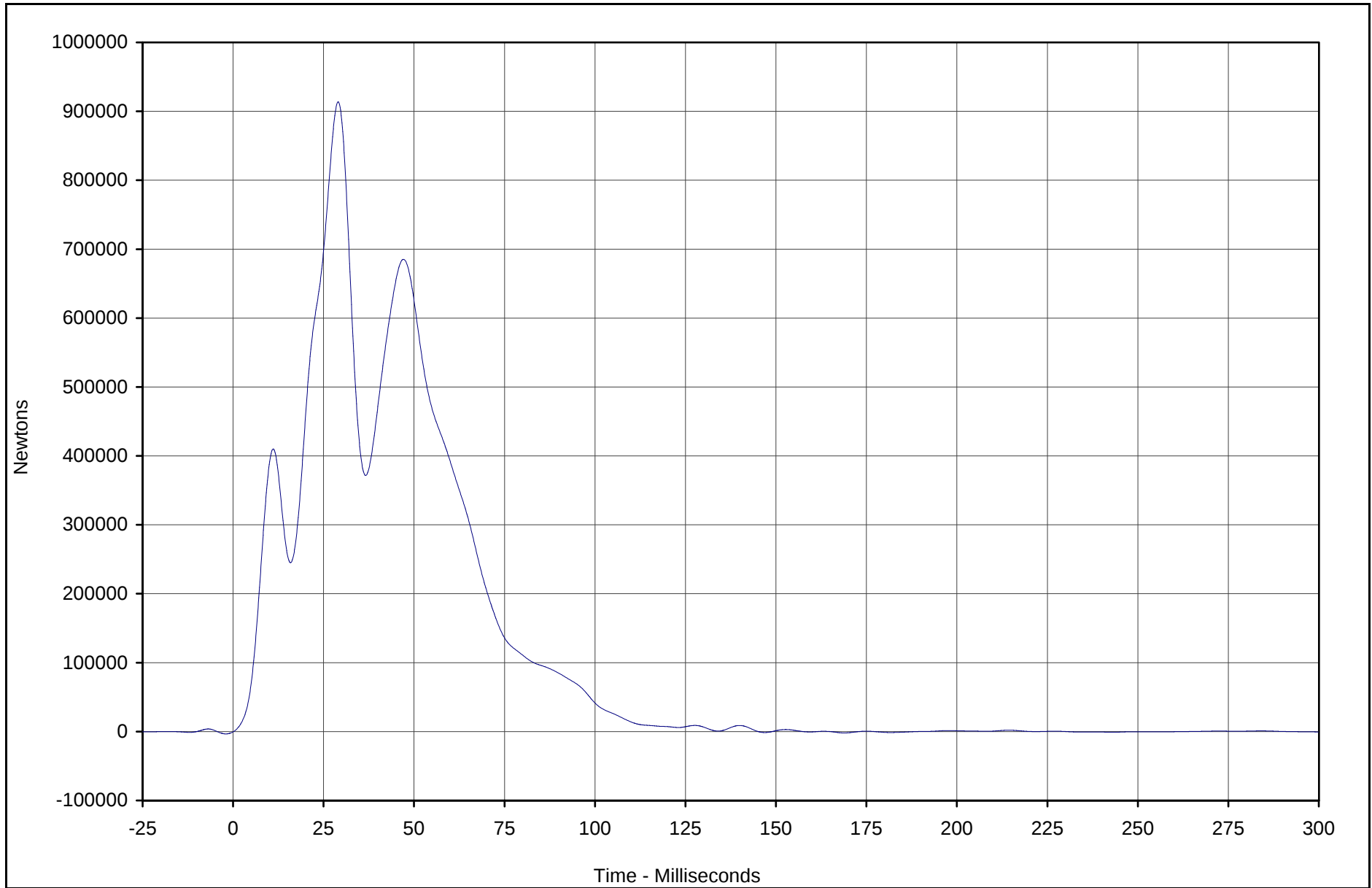
Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

KAR22001-08

C-43



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Barrier Force Total Sum	007	SUM	Newtons	913836.4	29.0	-2033.2	168.9	60



Test Vehicle: 2002 Mazda MPV LX Minivan

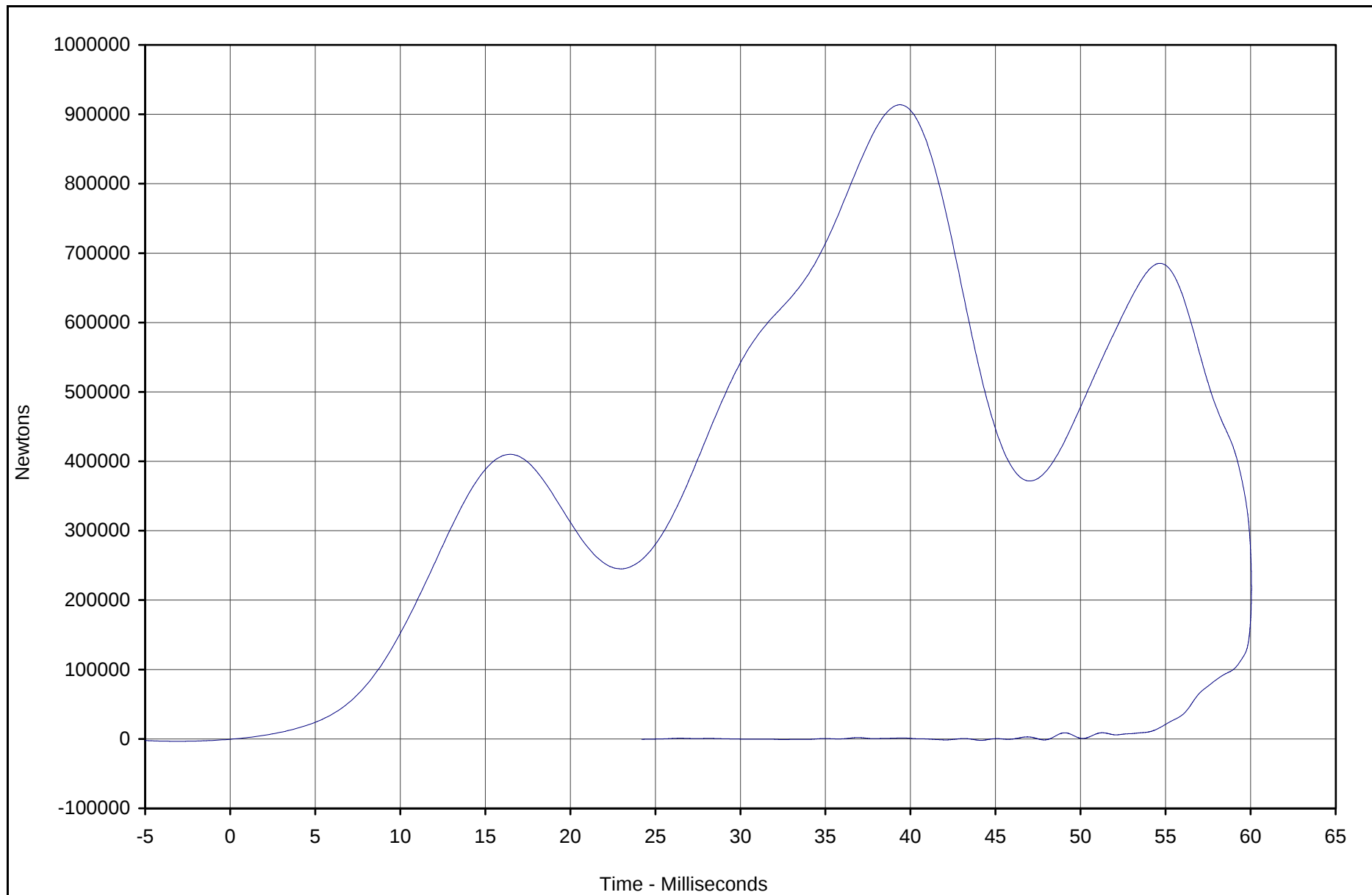
Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

KAR22001-08

C-44



Curve Description	CURNO	Type	Units	Max	CM	Energy (Joules)	SAE Class
Barrier Force Total Sum vs. Displ.	001	XVY	Newtons	913836.4	39.3	251040.9	60



Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

KAR22001-08

BARRIER LOAD CELL SUMMARY DATA

Test Vehicle: 2002 Mazda MPV LX Minivan

NHTSA No.: M25400

Test Program: 2002 NHTSA 35mph NCAP

Test Date: 5/14/02

Location	Units	Max	Time	Min	Time
Barrier Force A1	Newtons	0.0	0.0	0.0	0.0 *
Barrier Force A2	Newtons	3010.7	12.3	-2906.7	17.1
Barrier Force A3	Newtons	4808.4	11.3	-2189.9	35.5
Barrier Force A4	Newtons	56296.8	25.2	-869.8	6.9
Barrier Force A5	Newtons	34887.7	25.7	-1397.7	7.1
Barrier Force A6	Newtons	32163.0	61.2	-813.4	15.7
Barrier Force A7	Newtons	3217.5	11.3	-1783.7	15.8
Barrier Force A8	Newtons	4379.7	54.2	-423.5	34.4
Barrier Force A9	Newtons	4032.3	36.6	-585.2	49.5
Barrier Force B1	Newtons	0.0	0.0	0.0	0.0 *
Barrier Force B2	Newtons	19446.4	11.8	-1498.9	5.1
Barrier Force B3	Newtons	94491.2	30.5	-2343.9	2.1
Barrier Force B4	Newtons	61672.5	29.7	-73.8	168.6
Barrier Force B5	Newtons	66802.4	28.7	-1628.5	16.0
Barrier Force B6	Newtons	91582.4	28.3	-82.1	169.2
Barrier Force B7	Newtons	85827.6	30.1	-2081.0	1.9
Barrier Force B8	Newtons	14616.8	12.0	-720.0	4.8
Barrier Force B9	Newtons	1678.3	36.0	-1703.2	31.2
Barrier Force C1	Newtons	0.0	0.0	0.0	0.0 *
Barrier Force C2	Newtons	22179.3	30.6	-1931.0	5.7
Barrier Force C3	Newtons	63179.5	29.6	-1685.2	1.5
Barrier Force C4	Newtons	63666.2	28.4	-73.8	181.8
Barrier Force C5	Newtons	75897.5	28.1	-450.2	16.4
Barrier Force C6	Newtons	92288.1	27.4	-1101.8	16.3
Barrier Force C7	Newtons	55385.1	29.5	-1836.6	1.8
Barrier Force C8	Newtons	18317.7	49.8	-669.9	5.1
Barrier Force C9	Newtons	3182.5	54.6	-1572.0	31.2
Barrier Force D1	Newtons	0.0	0.0	0.0	0.0 *
Barrier Force D2	Newtons	18803.7	46.2	-3113.7	17.0
Barrier Force D3	Newtons	13819.8	30.5	-2134.7	7.8
Barrier Force D4	Newtons	9520.6	30.5	-2222.3	7.8
Barrier Force D5	Newtons	9426.1	13.0	-2854.9	35.8
Barrier Force D6	Newtons	7327.7	21.3	-3817.3	35.7
Barrier Force D7	Newtons	8499.6	21.4	-889.9	8.0
Barrier Force D8	Newtons	21244.9	51.6	-1223.4	17.1
Barrier Force D9	Newtons	0.0	0.0	0.0	0.0 *
Barrier Force Sum Group 1	Newtons	111002.8	30.4	-3270.0	2.7
Barrier Force Sum Group 2	Newtons	302019.9	28.4	-711.3	133.4
Barrier Force Sum Group 3	Newtons	93766.3	29.9	-2653.1	2.2
Barrier Force Sum Group 4	Newtons	109845.0	30.8	-2061.2	2.0
Barrier Force Sum Group 5	Newtons	239953.2	28.5	-524.8	182.1
Barrier Force Sum Group 6	Newtons	88154.0	48.3	-2365.1	1.8
Barrier Force Total Sum	Newtons	913836.4	29.0	-2033.2	168.9

* Not recorded

APPENDIX D

INSTRUMENTATION DATA CHANNEL ASSIGNMENTS

2002 NHTSA 35mph NCAP
Instrumentation Data Channel Assignments
Driver A.T.D. Serial Number 35
5/14/02
2002 Mazda MPV LX Minivan

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
1	HEAD, PRIMARY	X	GPAC027	Accel., 1/2 bridge	Endevco	7264-2000	G
2	HEAD, PRIMARY	Y	GPAC002	Accel., 1/2 bridge	Endevco	7264-2000	G
3	HEAD, PRIMARY	Z	GPAC003	Accel., 1/2 bridge	Endevco	7264-2000	G
4	HEAD, REDUNDANT	X	GPAC032	Accel., 1/2 bridge	Endevco	7264-2000	G
5	HEAD, REDUNDANT	Y	GPAC021	Accel., 1/2 bridge	Endevco	7264-2000	G
6	HEAD, REDUNDANT	Z	GPAC026	Accel., 1/2 bridge	Endevco	7264-2000	G
7	NECK FORCE	X	GPUN01FX	Load cell, six axis neck	R. A. Denton	1716A	N
8	NECK FORCE	Y	GPUN01FY	Load cell, six axis neck	R. A. Denton	1716A	N
9	NECK FORCE	Z	GPUN01FZ	Load cell, six axis neck	R. A. Denton	1716A	N
10	NECK MOMENT	X	GPUN01MX	Load cell, six axis neck	R. A. Denton	1716A	Nm
11	NECK MOMENT	Y	GPUN01MY	Load cell, six axis neck	R. A. Denton	1716A	Nm
12	NECK MOMENT	Z	GPUN01MZ	Load cell, six axis neck	R. A. Denton	1716A	Nm
13	CHEST , PRIMARY	X	GPAC005	Accel., 1/2 bridge	Endevco	7264-2000	G
14	CHEST , PRIMARY	Y	GPAC011	Accel., 1/2 bridge	Endevco	7264-2000	G
15	CHEST , PRIMARY	Z	GPAC010	Accel., 1/2 bridge	Endevco	7264-2000	G
16	CHEST , REDUNDANT	X	GPAC034	Accel., 1/2 bridge	Endevco	7264-2000	G
17	CHEST , REDUNDANT	Y	GPAC023	Accel., 1/2 bridge	Endevco	7264-2000	G
18	CHEST , REDUNDANT	Z	GPAC020	Accel., 1/2 bridge	Endevco	7264-2000	G
19	CHEST DISPLACEMENT	X	GPCP002	Rotary Pot Chest	Servo	14CBI	MM
20	PELVIS, PRIMARY	X	GPAC025	Accel., 1/2 bridge	Endevco	7264-2000	G
21	PELVIS, PRIMARY	Y	GPAC022	Accel., 1/2 bridge	Endevco	7264-2000	G
22	PELVIS, PRIMARY	Z	GPAC019	Accel., 1/2 bridge	Endevco	7264-2000	G
23	LEFT FEMUR FORCE	Z	KEFF003	Load cell, Femur	R.A. Denton	2121	N
24	RIGHT FEMUR FORCE	Z	KEFF004	Load cell, Femur	R.A. Denton	2121	N

**2002 NHTSA 35mph NCAP
Instrumentation Data Channel Assignments
Driver A.T.D. Serial Number 35
5/14/02
2002 Mazda MPV LX Minivan**

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
25	UP. TIBIA LEFT MOM.	X	GPUT09MX	2 ch., Upper tibia gage	R. A. Denton	1583	Nm
26	UP. TIBIA LEFT MOM.	Y	GPUT09MY	2 ch., Upper tibia gage	R. A. Denton	1583	Nm
27	UP. TIBIA RIGHT MOM.	X	GPUT09MX	2 ch., Upper tibia gage	R. A. Denton	1583	Nm
28	UP. TIBIA RIGHT MOM.	Y	GPUT09MY	2 ch., Upper tibia gage	R. A. Denton	1583	Nm
29	LWR. TIBIA LEFT MOM.	X	GPLT09MX	3 ch., lower tibia gage	R. A. Denton	3093	Nm
30	LWR. TIBIA LEFT MOM.	Y	GPLT09MY	3 ch., lower tibia gage	R. A. Denton	3093	Nm
31	LWR. TIBIA LEFT FORCE	Z	GPLT09FZ	3 ch., lower tibia gage	R. A. Denton	3093	N
32	LWR. TIBIA RIGHT MOM.	X	GPLT09MX	3 ch., lower tibia gage	R. A. Denton	3093	Nm
33	LWR. TIBIA RIGHT MOM.	Y	GPLT09MY	3 ch., lower tibia gage	R. A. Denton	3093	Nm
34	LWR. TIBIA RIGHT FORCE	Z	GPLT09FZ	3 ch., lower tibia gage	R. A. Denton	3093	N
35	FOOT LEFT, AFT	X	KEIC002X	Accel., Foot Triax	I.C. Sensor	3031-500	G
36	FOOT LEFT, AFT	Z	KEIC002Y	Accel., Foot Triax	I.C. Sensor	3031-500	G
37	FOOT LEFT, FORE	Z	KEIC002Z	Accel., Foot Triax	I.C. Sensor	3031-500	G
38	FOOT RIGHT, AFT	X	KEIC001X	Accel., Foot Triax	I.C. Sensor	3031-500	G
39	FOOT RIGHT, AFT	Z	KEIC001Y	Accel., Foot Triax	I.C. Sensor	3031-500	G
40	FOOT RIGHT, FORE	Z	KEIC001Z	Accel., Foot Triax	I.C. Sensor	3031-500	G
41	LAP BELT FORCE	X	KELC001	Load cell, Seat belt	Lebow	3371	N
42	SHOULDER BELT FORCE	X	KELC002	Load cell, Seat belt	Lebow	3371	N
43	SHOULDER BELT SPOOL	X	KEPP001	Pullout pot	Celesco	PTX101-0030	CM
44	SHOULDER BELT ELONG.	X	KEEP001	Linear pot., belt stretch	E.T.I.	LCP8-10 10K	MM/CM

**2002 NHTSA 35mph NCAP
Instrumentation Data Channel Assignments
Passenger A.T.D. Serial Number 34
5/14/02
2002 Mazda MPV LX Minivan**

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
45	HEAD, PRIMARY	X	KEAC039	Accel.,1/2 bridge	Endevco	7264-2000	G
46	HEAD, PRIMARY	Y	KEAC038	Accel.,1/2 bridge	Endevco	7264-2000	G
47	HEAD, PRIMARY	Z	KEAC027	Accel.,1/2 bridge	Endevco	7264-2000	G
48	HEAD, REDUNDANT	X	KEAC031	Accel.,1/2 bridge	Endevco	7264-2000	G
49	HEAD, REDUNDANT	Y	KEAC032	Accel.,1/2 bridge	Endevco	7264-2000	G
50	HEAD, REDUNDANT	Z	KEAC026	Accel.,1/2 bridge	Endevco	7264-2000	G
51	NECK FORCE	X	GPUN02FX	Load cell, six axis neck	R. A. Denton	1716A	N
52	NECK FORCE	Y	GPUN02FY	Load cell, six axis neck	R. A. Denton	1716A	N
53	NECK FORCE	Z	GPUN02FZ	Load cell, six axis neck	R. A. Denton	1716A	N
54	NECK MOMENT	X	GPUN02MX	Load cell, six axis neck	R. A. Denton	1716A	Nm
55	NECK MOMENT	Y	GPUN02MY	Load cell, six axis neck	R. A. Denton	1716A	Nm
56	NECK MOMENT	Z	GPUN02MZ	Load cell, six axis neck	R. A. Denton	1716A	Nm
57	CHEST , PRIMARY	X	GPAC031	Accel., 1/2 bridge	Endevco	7264-2000	G
58	CHEST , PRIMARY	Y	GPAC024	Accel., 1/2 bridge	Endevco	7264-2000	G
59	CHEST , PRIMARY	Z	GPAC029	Accel., 1/2 bridge	Endevco	7264-2000	G
60	CHEST , REDUNDANT	X	KEAC023	Accel.,1/2 bridge	Endevco	7264-200	G
61	CHEST , REDUNDANT	Y	KEAC022	Accel.,1/2 bridge	Endevco	7264-200	G
62	CHEST , REDUNDANT	Z	KEAC024	Accel.,1/2 bridge	Endevco	7264-200	G
63	CHEST DISPLACEMENT	X	GPCP001	Rotary Pot Chest	Servo	14CBI	MM
64	PELVIS, PRIMARY	X	KEAC019	Accel.,1/2 bridge	Endevco	7264-200	G
65	PELVIS, PRIMARY	Y	KEAC020	Accel.,1/2 bridge	Endevco	7264-200	G
66	PELVIS, PRIMARY	Z	KEAC021	Accel.,1/2 bridge	Endevco	7264-200	G
67	LEFT FEMUR FORCE	Z	KEFF001	Load cell, Femur	R.A. Denton	2121	N
68	RIGHT FEMUR FORCE	Z	KEFF002	Load cell, Femur	R.A. Denton	2121	N

2002 NHTSA 35mph NCAP
Instrumentation Data Channel Assignments
Passenger A.T.D. Serial Number 34
5/14/02
2002 Mazda MPV LX Minivan

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
69	UP. TIBIA LEFT MOM.	X	GPUT09MX	2 ch., Upper tibia gage	R. A. Denton	1583	Nm
70	UP. TIBIA LEFT MOM.	Y	GPUT09MY	2 ch., Upper tibia gage	R. A. Denton	1583	Nm
71	UP. TIBIA RIGHT MOM.	X	GPUT09MX	2 ch., Upper tibia gage	R. A. Denton	1583	Nm
72	UP. TIBIA RIGHT MOM.	Y	GPUT09MY	2 ch., Upper tibia gage	R. A. Denton	1583	Nm
73	LWR. TIBIA LEFT MOM.	X	GPLT09MX	3 ch., lower tibia gage	R. A. Denton	3093	Nm
74	LWR. TIBIA LEFT MOM.	Y	GPLT09MY	3 ch., lower tibia gage	R. A. Denton	3093	Nm
75	LWR. TIBIA LEFT FORCE	Z	GPLT09FZ	3 ch., lower tibia gage	R. A. Denton	3093	N
76	LWR. TIBIA RIGHT MOM.	X	GPLT09MX	3 ch., lower tibia gage	R. A. Denton	3093	Nm
77	LWR. TIBIA RIGHT MOM.	Y	GPLT09MY	3 ch., lower tibia gage	R. A. Denton	3093	Nm
78	LWR. TIBIA RIGHT FORCE	Z	GPLT09FZ	3 ch., lower tibia gage	R. A. Denton	3093	N
79	FOOT LEFT, AFT	X	KEIC003X	Accel., Foot Triax	I.C. Sensor	3031-500	G
80	FOOT LEFT, AFT	Z	KEIC003Y	Accel., Foot Triax	I.C. Sensor	3031-500	G
81	FOOT LEFT, FORE	Z	KEIC003Z	Accel., Foot Triax	I.C. Sensor	3031-500	G
82	FOOT RIGHT, AFT	X	KEIC004X	Accel., Foot Triax	I.C. Sensor	3031-500	G
83	FOOT RIGHT, AFT	Z	KEIC004Y	Accel., Foot Triax	I.C. Sensor	3031-500	G
84	FOOT RIGHT, FORE	Z	KEIC004Z	Accel., Foot Triax	I.C. Sensor	3031-500	G
85	LAP BELT FORCE	X	KELC003	Load cell, Seat belt	Lebow	3371	N
86	SHOULDER BELT FORCE	X	KELC004	Load cell, Seat belt	Lebow	3371	N
87	SHOULDER BELT SPOOL	X	KEPP001	Pullout pot	Celesco	PTX101-0030	MM
88	SHOULDER BELT ELONG.	X	KEEP001	Linear pot., belt stretch	E.T.I.	LCP8-10 10K	MM/CM

**2002 NHTSA 35mph NCAP
Instrumentation Data Channel Assignments
Vehicle Accelerometers
5/14/02
2002 Mazda MPV LX Minivan**

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
89	Left Rear	X	KEVA005	Accel., Vehicle block	I.C. Sensor	3031-500	G
90	Right Rear	X	KEVA002	Accel., Pre-Amp	I.C.S/Karco	3031-500	G
91	Engine Top	X	KEVA012	Accel., Vehicle block	I.C. Sensor	3031-500	G
92	Engine Bottom	X	KEVA008	Accel., Vehicle block	I.C. Sensor	3031-500	G
93	Left Brake Caliper	X	KEVA007	Accel., Vehicle block	I.C. Sensor	3031-500	G
94	Right Brake Caliper	X	KEVA001	Accel., Vehicle block	I.C. Sensor	3031-500	G
95	Instrument Panel	X	KEVA011	Accel., Vehicle block	I.C. Sensor	3031-200	G
96	Left Rear	Z	KEVA010	Accel., Vehicle block	I.C. Sensor	3031-200	G
97	Right Rear	Z	KEVA006	Accel., Vehicle block	I.C. Sensor	3031-200	G

**2002 NHTSA 35mph NCAP
Instrumentation Data Channel Assignments
Rigid Load Cell Barrier
5/14/02
2002 Mazda MPV LX Minivan**

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
98	BARRIER FORCE A1	X	BARRIER	Not Used	N/A	N/A	N/A
99	BARRIER FORCE A2	X	BARRIER	Load Cell, LCB	Lebow	1220-FS	N
100	BARRIER FORCE A3	X	BARRIER	Load Cell, LCB	Lebow	1220-FS	N
101	BARRIER FORCE A4	X	BARRIER	Load Cell, LCB	Lebow	1220-FS	N
102	BARRIER FORCE A5	X	BARRIER	Load Cell, LCB	Lebow	1220-FS	N
103	BARRIER FORCE A6	X	BARRIER	Load Cell, LCB	Lebow	1220-FS	N
104	BARRIER FORCE A7	X	BARRIER	Load Cell, LCB	Lebow	1220-FS	N
105	BARRIER FORCE A8	X	BARRIER	Load Cell, LCB	Lebow	1220-FS	N
106	BARRIER FORCE A9	X	BARRIER	Load Cell, LCB	Lebow	1220-FS	N
107	BARRIER FORCE B1	X	BARRIER	Not Used	N/A	N/A	N/A
108	BARRIER FORCE B2	X	BARRIER	Load Cell, LCB	Lebow	1220-FS	N
109	BARRIER FORCE B3	X	BARRIER	Load Cell, LCB	Lebow	1220-FS	N
110	BARRIER FORCE B4	X	BARRIER	Load Cell, LCB	Lebow	1220-FS	N
111	BARRIER FORCE B5	X	BARRIER	Load Cell, LCB	Lebow	1220-FS	N
112	BARRIER FORCE B6	X	BARRIER	Load Cell, LCB	Lebow	1220-FS	N
113	BARRIER FORCE B7	X	BARRIER	Load Cell, LCB	Lebow	1220-FS	N
114	BARRIER FORCE B8	X	BARRIER	Load Cell, LCB	Lebow	1220-FS	N
115	BARRIER FORCE B9	X	BARRIER	Load Cell, LCB	Lebow	1220-FS	N

**2002 NHTSA 35mph NCAP
Instrumentation Data Channel Assignments
Rigid Load Cell Barrier
5/14/02
2002 Mazda MPV LX Minivan**

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
116	BARRIER FORCE C1	X	N/A	Not Used	N/A	N/A	N/A
117	BARRIER FORCE C2	X	BARRIER	Load Cell, LCB	Lebow	1220-FS	N
118	BARRIER FORCE C3	X	BARRIER	Load Cell, LCB	Lebow	1220-FS	N
119	BARRIER FORCE C4	X	BARRIER	Load Cell, LCB	Lebow	1220-FS	N
120	BARRIER FORCE C5	X	BARRIER	Load Cell, LCB	Lebow	1220-FS	N
121	BARRIER FORCE C6	X	BARRIER	Load Cell, LCB	Lebow	1220-FS	N
122	BARRIER FORCE C7	X	BARRIER	Load Cell, LCB	Lebow	1220-FS	N
123	BARRIER FORCE C8	X	BARRIER	Load Cell, LCB	Lebow	1220-FS	N
124	BARRIER FORCE C9	X	BARRIER	Load Cell, LCB	Lebow	1220-FS	N
125	BARRIER FORCE D1	X	N/A	Not Used	N/A	N/A	N/A
126	BARRIER FORCE C8	X	BARRIER	Load Cell, LCB	Lebow	1220-FS	N
127	BARRIER FORCE C8	X	BARRIER	Load Cell, LCB	Lebow	1220-FS	N
128	BARRIER FORCE C8	X	BARRIER	Load Cell, LCB	Lebow	1220-FS	N
129	BARRIER FORCE C8	X	BARRIER	Load Cell, LCB	Lebow	1220-FS	N
130	BARRIER FORCE C8	X	BARRIER	Load Cell, LCB	Lebow	1220-FS	N
131	BARRIER FORCE C8	X	BARRIER	Load Cell, LCB	Lebow	1220-FS	N
132	BARRIER FORCE C8	X	BARRIER	Load Cell, LCB	Lebow	1220-FS	N
133	BARRIER FORCE D9	X	N/A	Not Used	N/A	N/A	N/A

2002 NHTSA 35mph NCAP
Instrumentation Data Channel Assignments
Nine Accelerometer Head Array Channels
5/14/02
2002 Mazda MPV LX Minivan

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
134	Driver Head CG	X	KEAC039	Accel.,1/2 bridge	Endevco	7264-2000	G
135	Driver Head CG	Y	KEAC038	Accel.,1/2 bridge	Endevco	7264-2000	G
136	Driver Head CG	Z	KEAC027	Accel.,1/2 bridge	Endevco	7264-2000	G
137	Driver Y-arm	Z	GPAC016	Accel., 1/2 bridge	Endevco	7264-2000	G
138	Driver Y-arm	X	GPAC015	Accel., 1/2 bridge	Endevco	7264-2000	G
139	Driver X-arm	Z	GPAC004	Accel., 1/2 bridge	Endevco	7264-2000	G
140	Driver X-arm	Y	GPAC018	Accel., 1/2 bridge	Endevco	7264-2000	G
141	Driver Z-arm	X	GPAC006	Accel., 1/2 bridge	Endevco	7264-2000	G
142	Driver Z-arm	Y	GPAC007	Accel., 1/2 bridge	Endevco	7264-2000	G
143	Passenger Head CG	X	GPAC027	Accel., 1/2 bridge	Endevco	7264-2000	G
144	Passenger Head CG	Y	GPAC002	Accel., 1/2 bridge	Endevco	7264-2000	G
145	Passenger Head CG	Z	GPAC003	Accel., 1/2 bridge	Endevco	7264-2000	G
146	Passenger Y-arm	Z	GPAC012	Accel., 1/2 bridge	Endevco	7264-2000	G
147	Passenger Y-arm	X	GPAC001	Accel., 1/2 bridge	Endevco	7264-2000	G
148	Passenger X-arm	Z	GPAC036	Accel., 1/2 bridge	Endevco	7264-2000	G
149	Passenger X-arm	Y	GPAC014	Accel., 1/2 bridge	Endevco	7264-2000	G
150	Passenger Z-arm	X	GPAC030	Accel., 1/2 bridge	Endevco	7264-2000	G
151	Passenger Z-arm	Y	GPAC037	Accel., 1/2 bridge	Endevco	7264-2000	G

* Duplicate of Head CG Primary Channels

APPENDIX E

DUMMY CALIBRATION DATA



Hybrid III Calibration Data Sheet

Hybrid III 50th Percentile Male

Knee Impact Test

ATD Serial No.: 034

Location: Left Knee

Test I.D.: LK01C

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.09	Pass
Peak Probe Force	N	4715 to 5782	5276	Pass
Overall Test Results				Pass

ATD Serial No.: 034

Location: Right Knee

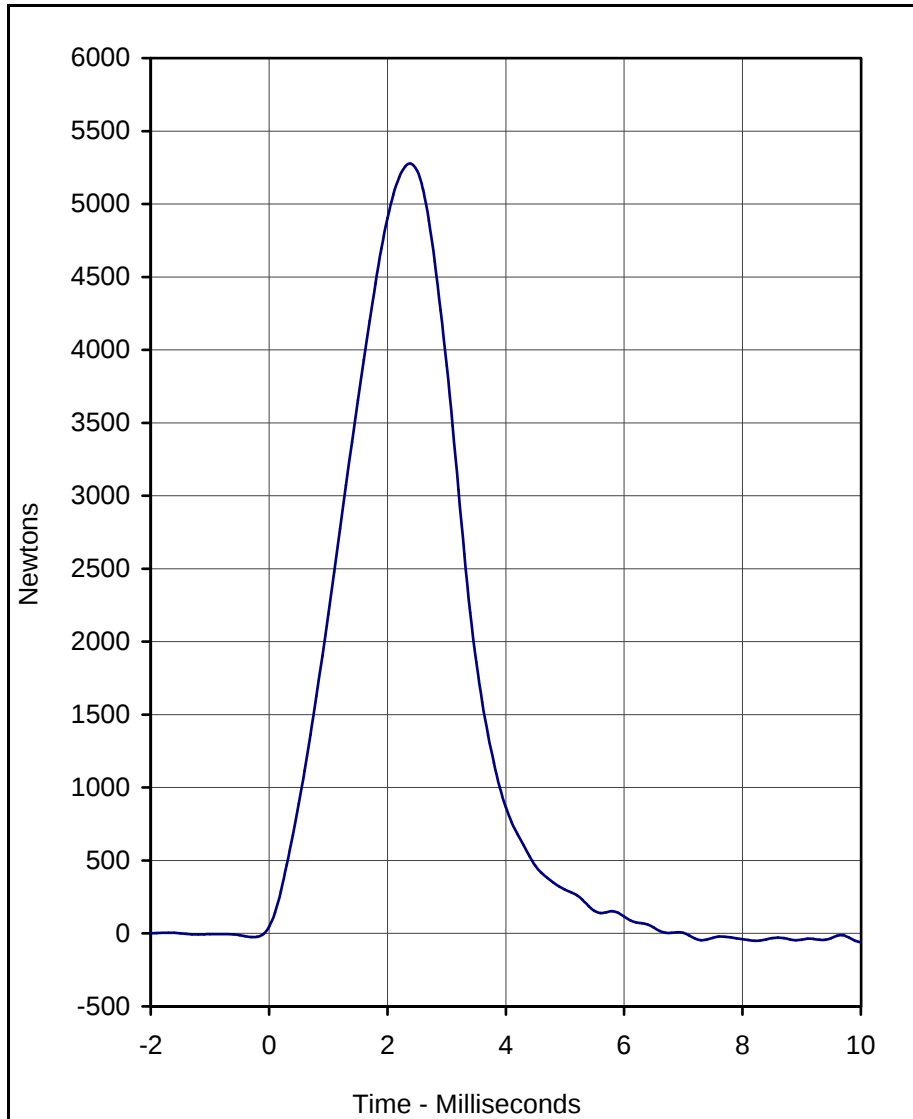
Test I.D.: LK01D

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.13	Pass
Peak Probe Force	N	4715 to 5782	5231	Pass
Overall Test Results				Pass

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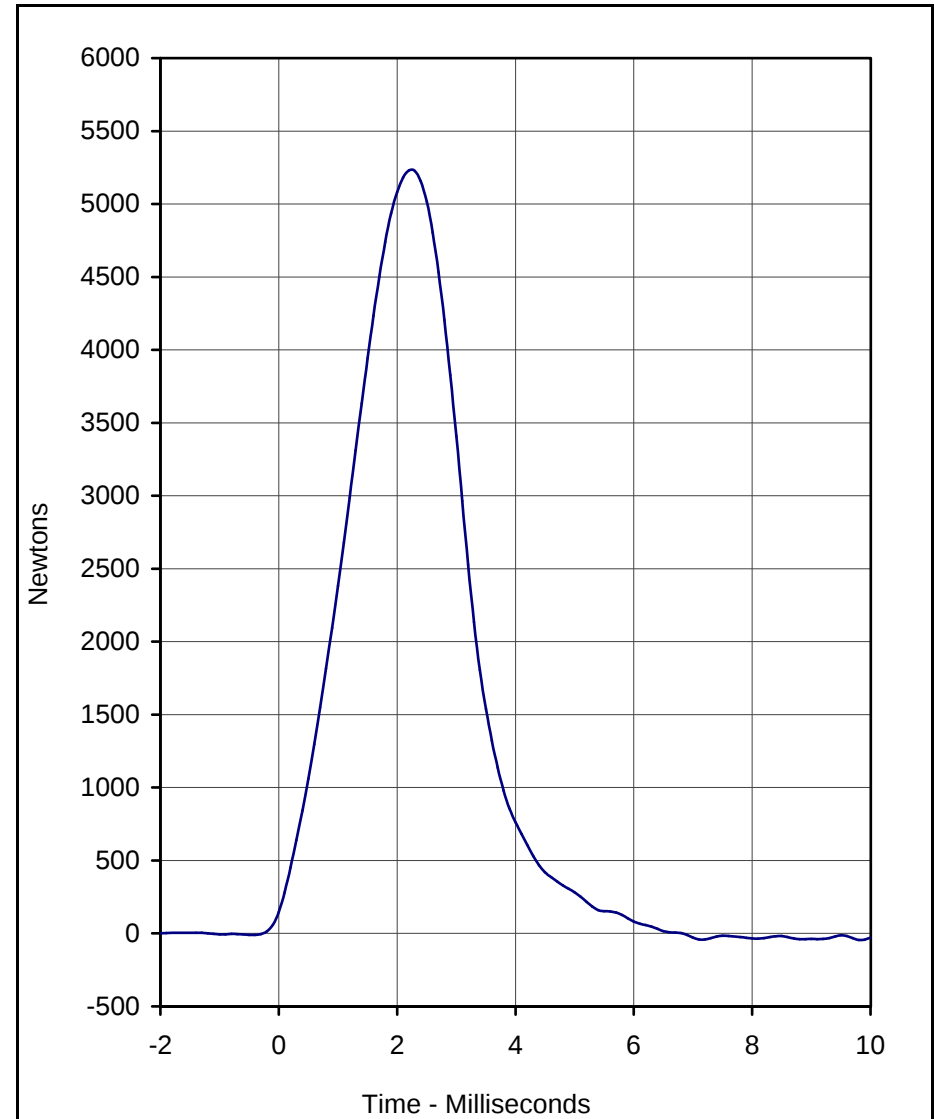
Test Date



Curve Description	Location	Test I.D.	CURNO	Type
Probe Force	Left Knee	LK01C	001	FIL

Units	Max	Time	Min	Time	SAE Class
Newtons	5275.8	2.4	-62.1	10.0	600

Test Program: Hybrid III 50th Percentile Male Knee Impact Test
 Test Date: 4/24/02



Curve Description	Location	Test I.D.	CURNO	Type
Probe Force	Right Knee	LK01D	002	FIL

Units	Max	Time	Min	Time	SAE Class
Newtons	5230.9	2.2	-44.6	9.8	600

A.T.D. Serial No.: 034





Hybrid III Calibration Data Sheet

Hybrid III 50th Percentile Male

Head Drop Test

ATD Serial No.: 034

Test I.D.: HD01C

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Resultant Acceleration	G's	225.0 to 275.0	242.1	Pass
Peak Lateral Acceleration	G's	≤15.0	2.4	Pass
Overall Test Results				Pass

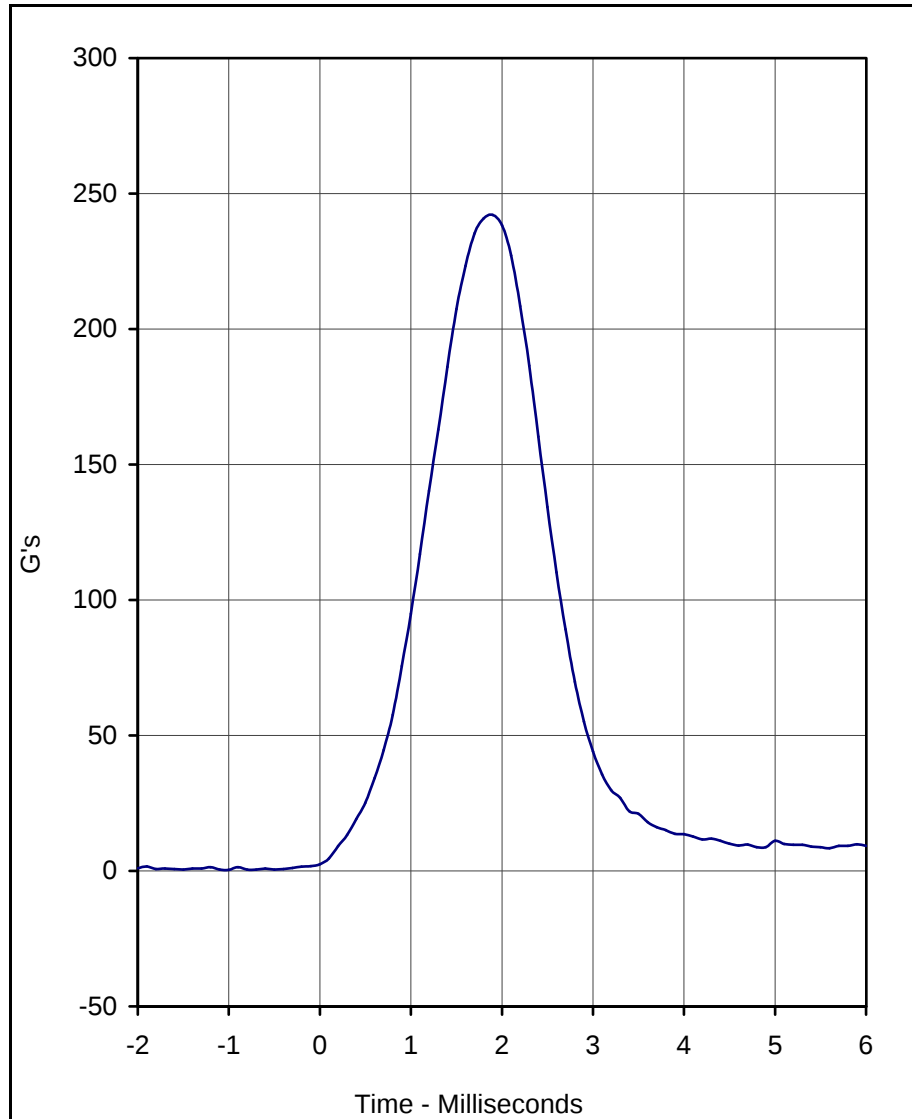
E-3

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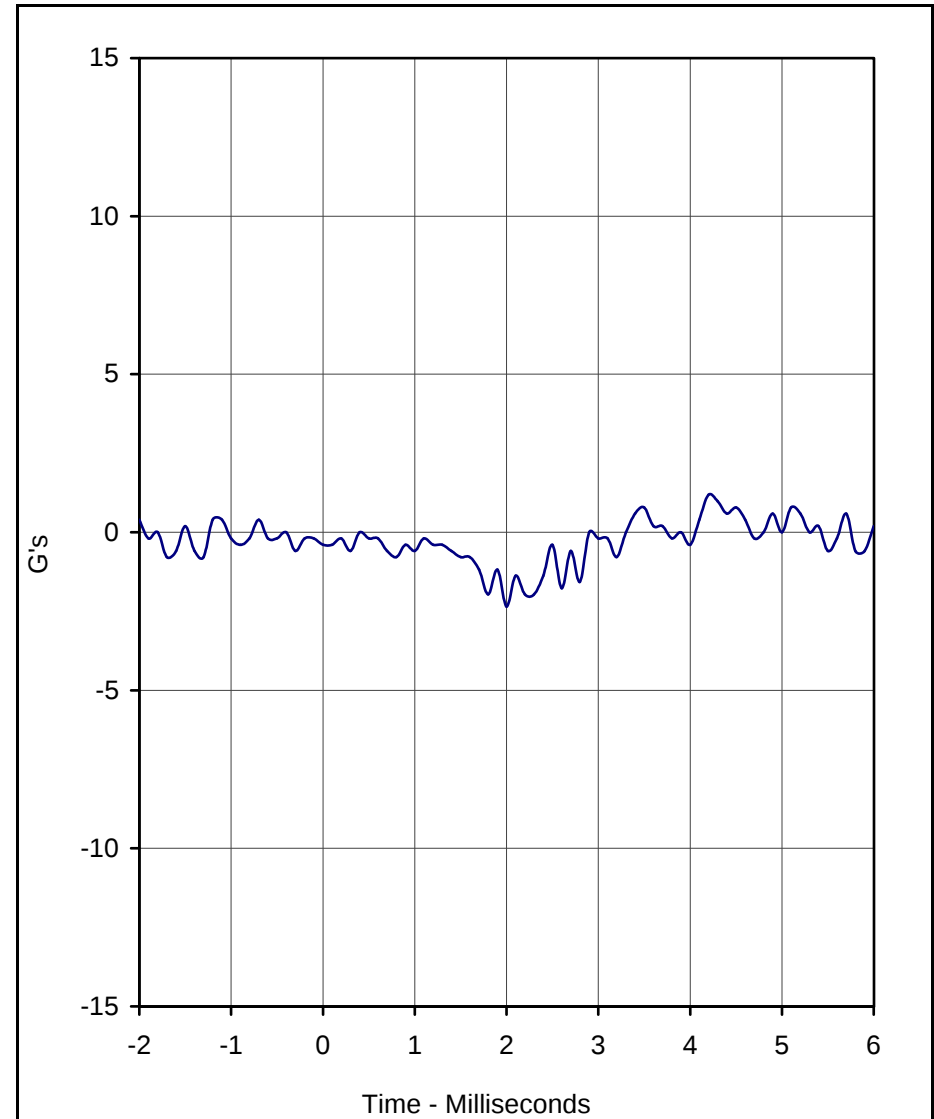
Test Date



Curve Description	CURNO	Type
Head Resultant	001	RES

Units	Max	Time	Min	Time	SAE Class
G's	242.1	1.9	0.4	-1.0	1000

Test Program: Hybrid III 50th Percentile Male Head Drop Test
 Test Date: 4/24/02



Curve Description	CURNO	Type
Head Y	002	FIL

Units	Max	Time	Min	Time	SAE Class
G's	1.2	4.2	-2.4	2.0	1000

A.T.D. Serial No.: 034
 Test I.D.: HD01C





Hybrid III Calibration Data Sheet

Hybrid III 50th Percentile Male

Thorax Impact Test

ATD Serial No.: 034

Test I.D.: CH05T

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	6.58 to 6.82	6.80	Pass
Peak Probe Force	Newtons	5159 to 5893	5888	Pass
Peak Sternum Displacement	CM	6.35 to 7.26	6.64	Pass
Internal Hysteresis	%	69 to 85	76.1	Pass
Overall Test Results				Pass

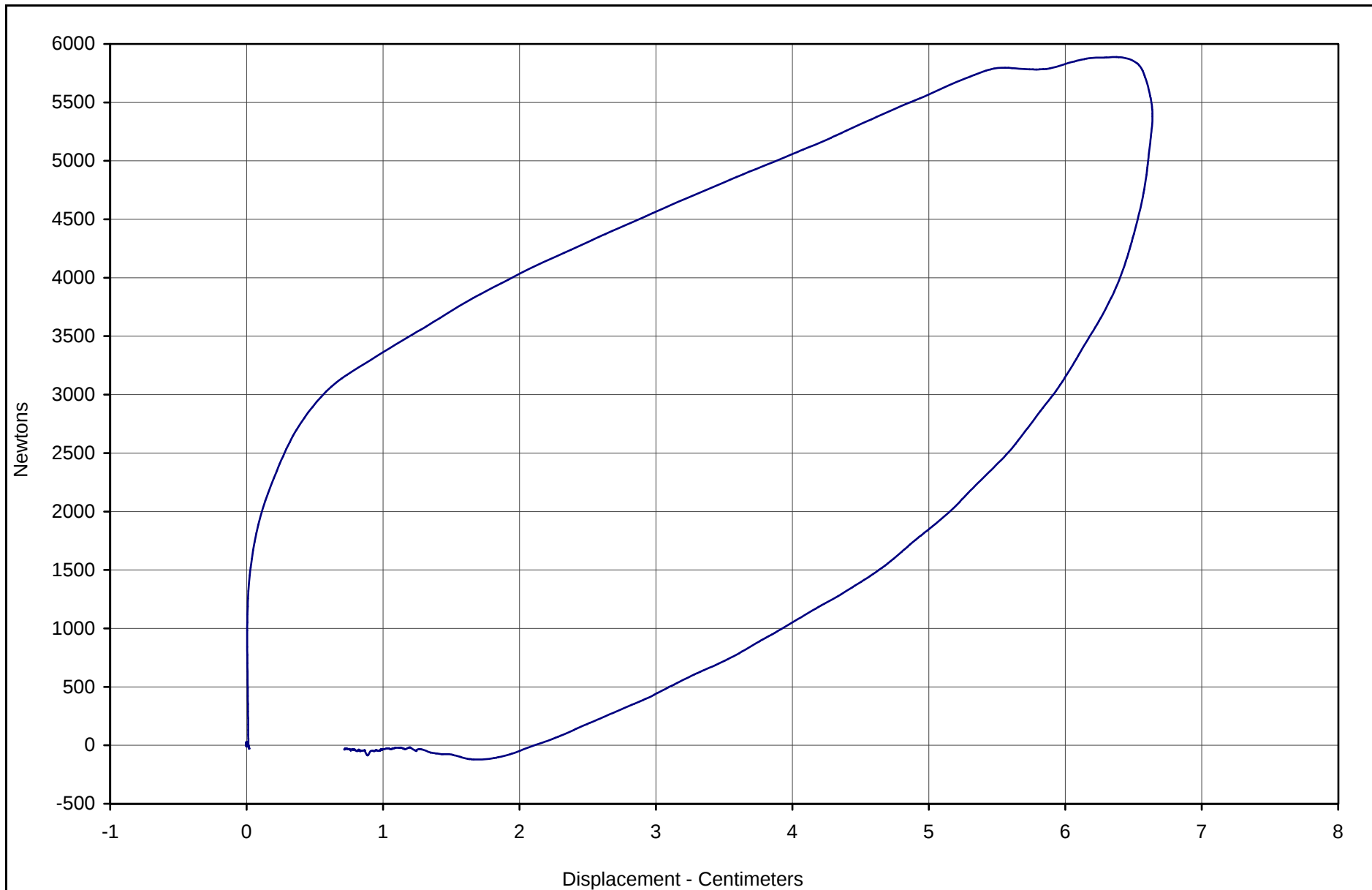
E-5

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Test Date



Curve Description	CURNO	Type	Hysteresis	Peak Chest Displ.	Peak Probe Force	SAE Class
Probe Force vs. Chest Displacement	001	FIL	76.1	6.64	5888.3	180



Test Program: Hybrid III 50th Percentile Male Thorax Impact

A.T.D. Serial No.: 034

Test Date: 4/24/02

Test I.D.: CH05T



Hybrid III Calibration Data Sheet

Hybrid III 50th Percentile Male

Neck Flexion Test

ATD Serial No.: 034

Test I.D.: NF05A

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	6.89 to 7.13	6.92	Pass
Pendulum Deceleration	10 Msec.	G's	22.5 to 27.5	23.7	Pass
	20 Msec.	G's	17.6 to 22.6	22.1	Pass
	30 Msec.	G's	12.5 to 18.5	18.4	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 29.0	18.4	Pass
Deceleration Decay, Time to Cross 5 G's		Msec.	34.0 to 42.0	36.2	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	64.0 to 78.0	67.5	Pass
	Time	Msec.	57.0 to 64.0	62.5	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		Msec.	113.0 to 128.0	116.2	Pass
Moment About Occipital Condyle	Maximum	Nm	84.1 to 108.5	88.7	Pass
	Time	Msec.	47.0 to 58.0	53.8	Pass
Positive Moment Decay, Time To Zero Crossing		Msec.	97.0 to 107.0	99.3	Pass
Overall Test Results					Pass

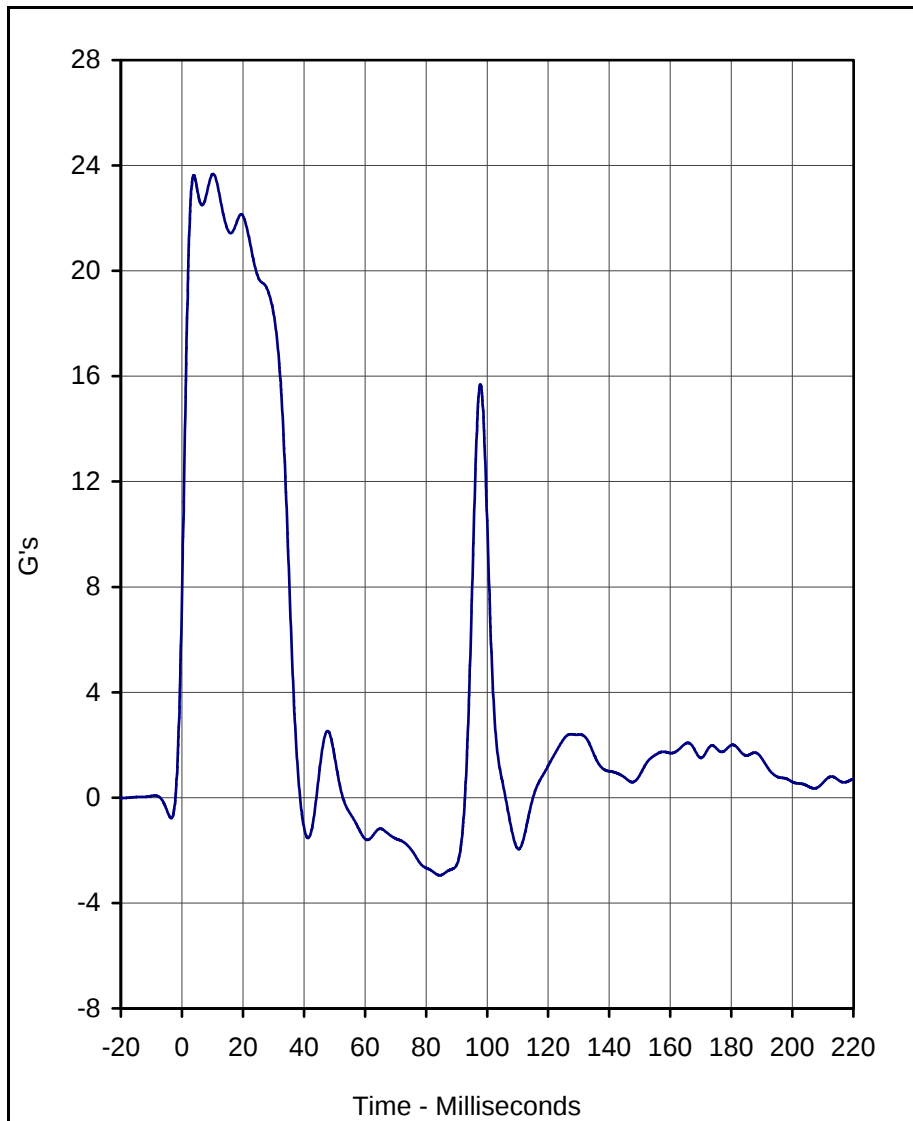
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April 24, 2002

Test Date

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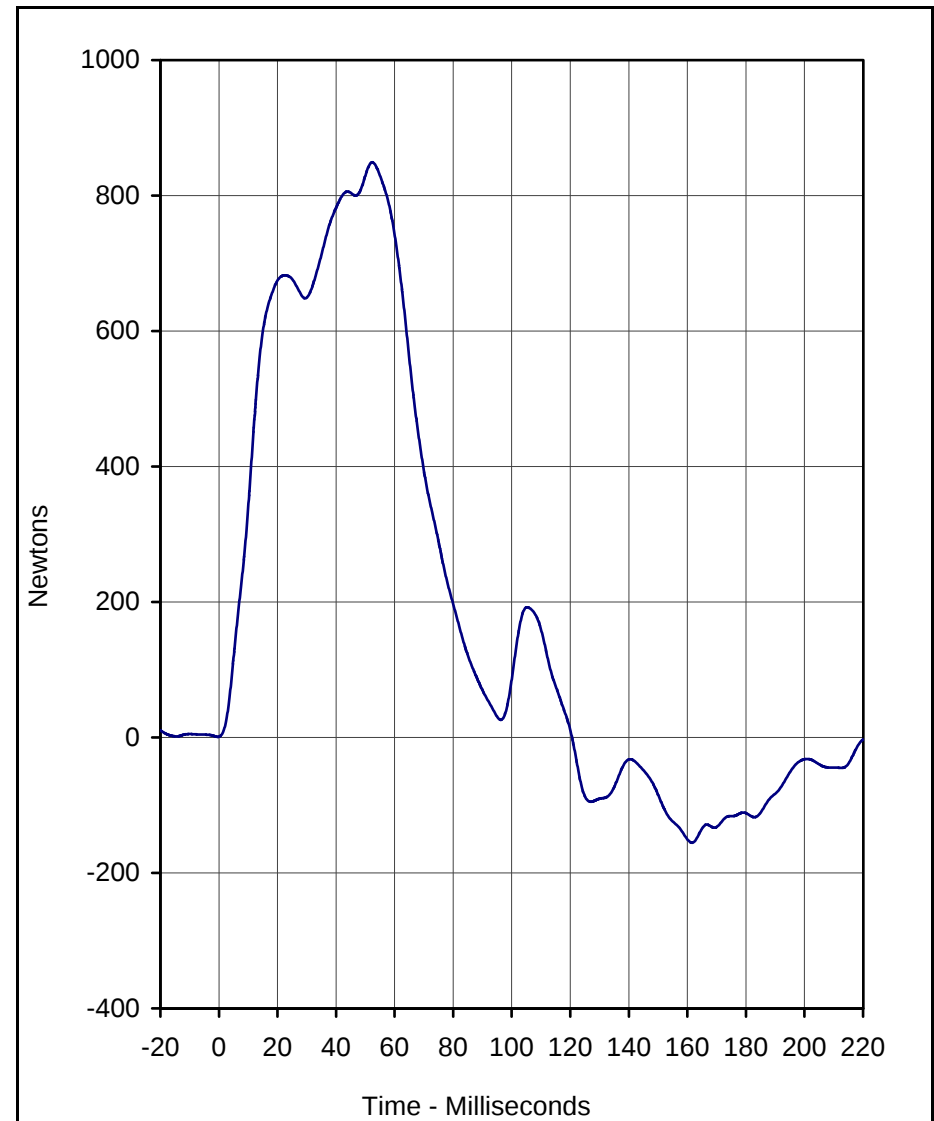
KAR22001-08



Curve Description	CURNO	Type
Pendulum Deceleration	001	FIL

Units	Max	Time	Min	Time	SAE Class
G's	23.7	10.2	-2.9	84.5	60

Test Program: Hybrid III 50th Percentile Male Neck Flexion Test
 Test Date: 4/24/02

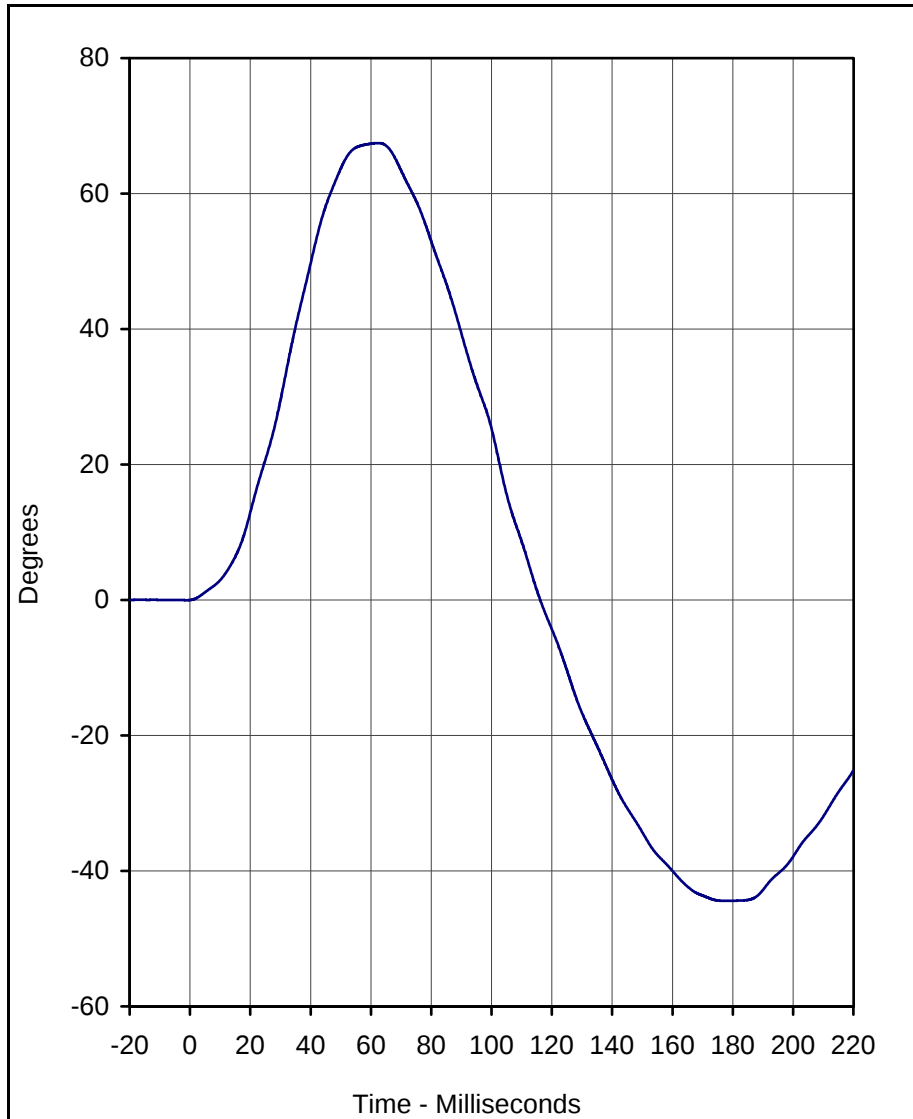


Curve Description	CURNO	Type
Neck Force X	002	FIL

Units	Max	Time	Min	Time	SAE Class
Newtons	849.1	52.4	-155.3	161.6	60

A.T.D. Serial No.: 034
 Test I.D.: NF05A

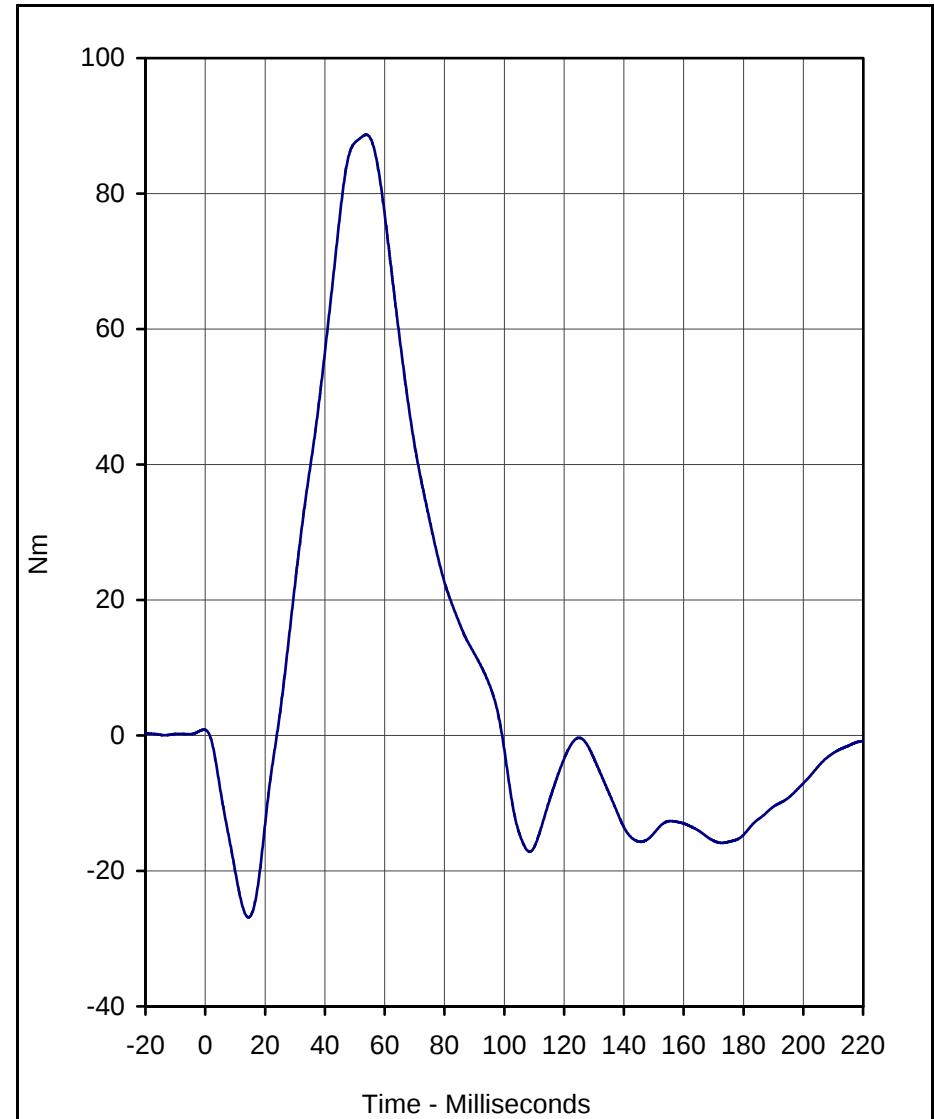




Curve Description	CURNO	Type
"D" Plane Rotation	003	FIL

Units	Max	Time	Min	Time	SAE Class
Degrees	67.5	62.5	-44.4	178.4	60

Test Program: Hybrid III 50th Percentile Male Neck Flexion Test
 Test Date: 4/24/02



Curve Description	CURNO	Type
Moment About Occipital Condyle	004	FIL

Units	Max	Time	Min	Time	SAE Class
Nm	88.7	53.8	-26.9	14.5	60

A.T.D. Serial No.: 034
 Test I.D.: NF05A





Hybrid III Calibration Data Sheet

Hybrid III 50th Percentile Male

Neck Extension Test

ATD Serial No.: 034

Test I.D.: NE05A

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	5.94 to 6.19	6.13	Pass
Pendulum Deceleration	10 Msec.	G's	17.2 to 21.2	20.0	Pass
	20 Msec.	G's	14.0 to 19.0	17.8	Pass
	30 Msec.	G's	11.0 to 16.0	15.9	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 22.0	15.9	Pass
Deceleration Decay, Time to Cross 5 G's		Msec.	38.0 to 46.0	38.0	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	81.0 to 106.0	86.8	Pass
	Time	Msec.	72.0 to 82.0	76.7	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		Msec.	147.0 to 174.0	147.7	Pass
Moment About Occipital Condyle	Maximum	Nm	-52.9 to- 79.9	-76.4	Pass
	Time	Msec.	65.0 to 79.0	65.7	Pass
Positive Moment Decay, Time To Zero Crossing		Msec.	120.0 to 148.0	141.7	Pass
Overall Test Results					Pass

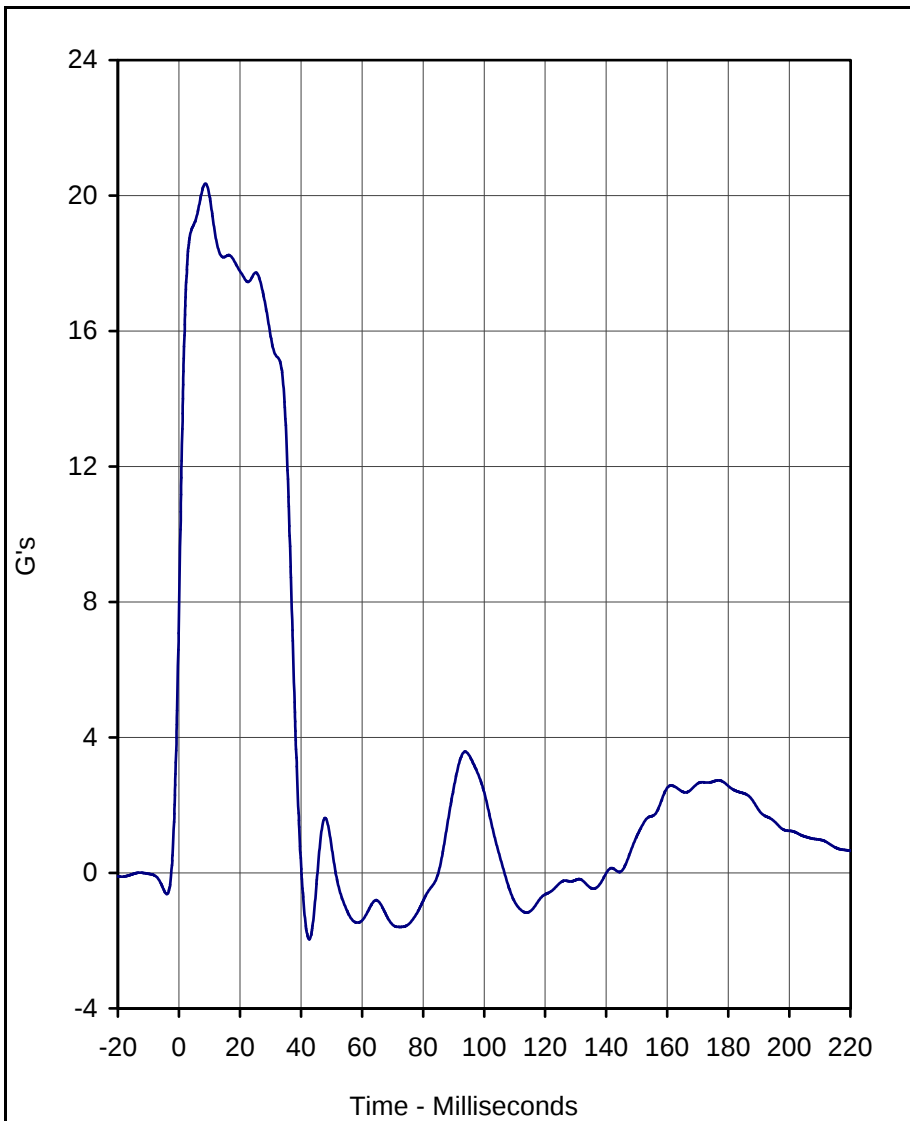
Laboratory Technician

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Test Date

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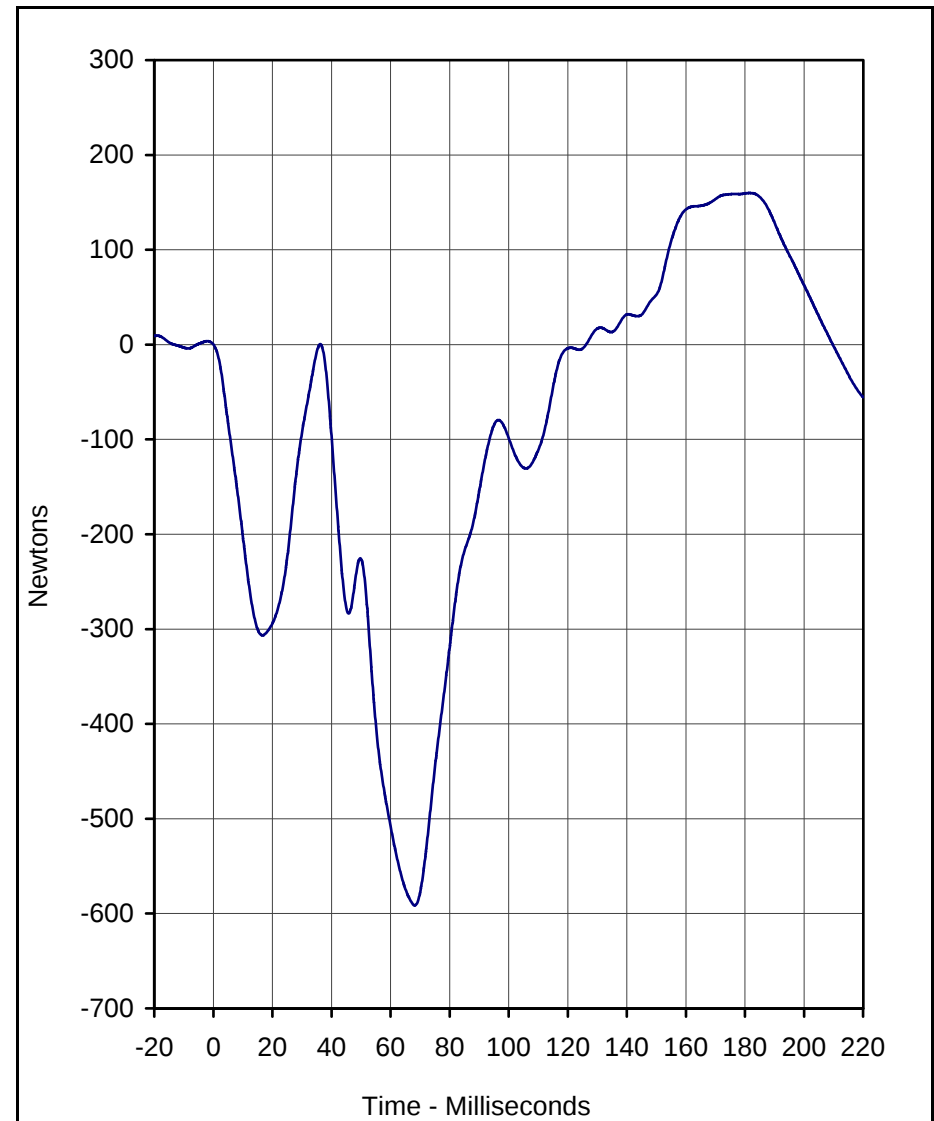
KAR22001-08



Curve Description	CURNO	Type
Pendulum Deceleration	001	FIL

Units	Max	Time	Min	Time	SAE Class
G's	20.4	8.7	-2.0	42.7	60

Test Program: Hybrid III 50th Percentile Male Neck Extension Test
 Test Date: 4/24/02

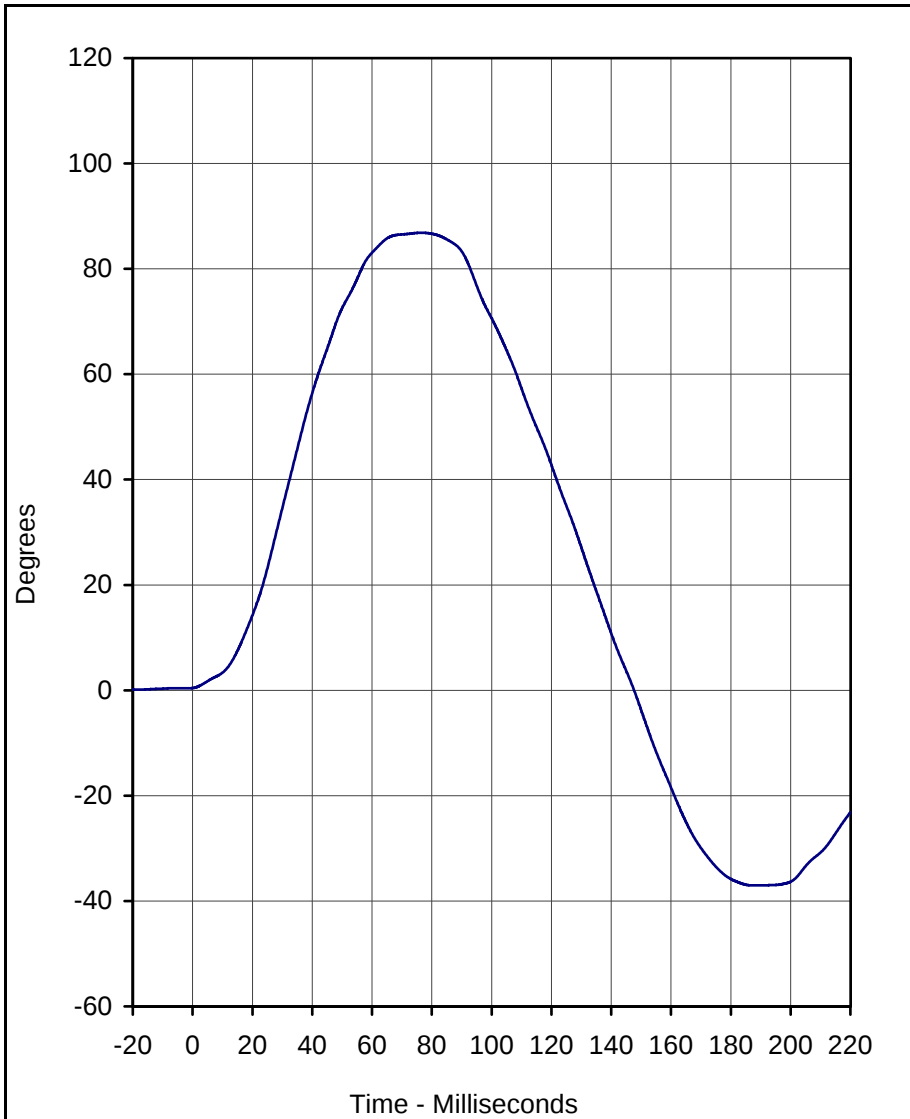


Curve Description	CURNO	Type
Neck Force X	002	FIL

Units	Max	Time	Min	Time	SAE Class
Newtons	159.8	181.5	-591.3	68.2	60

A.T.D. Serial No.: 034
 Test I.D.: NE05A

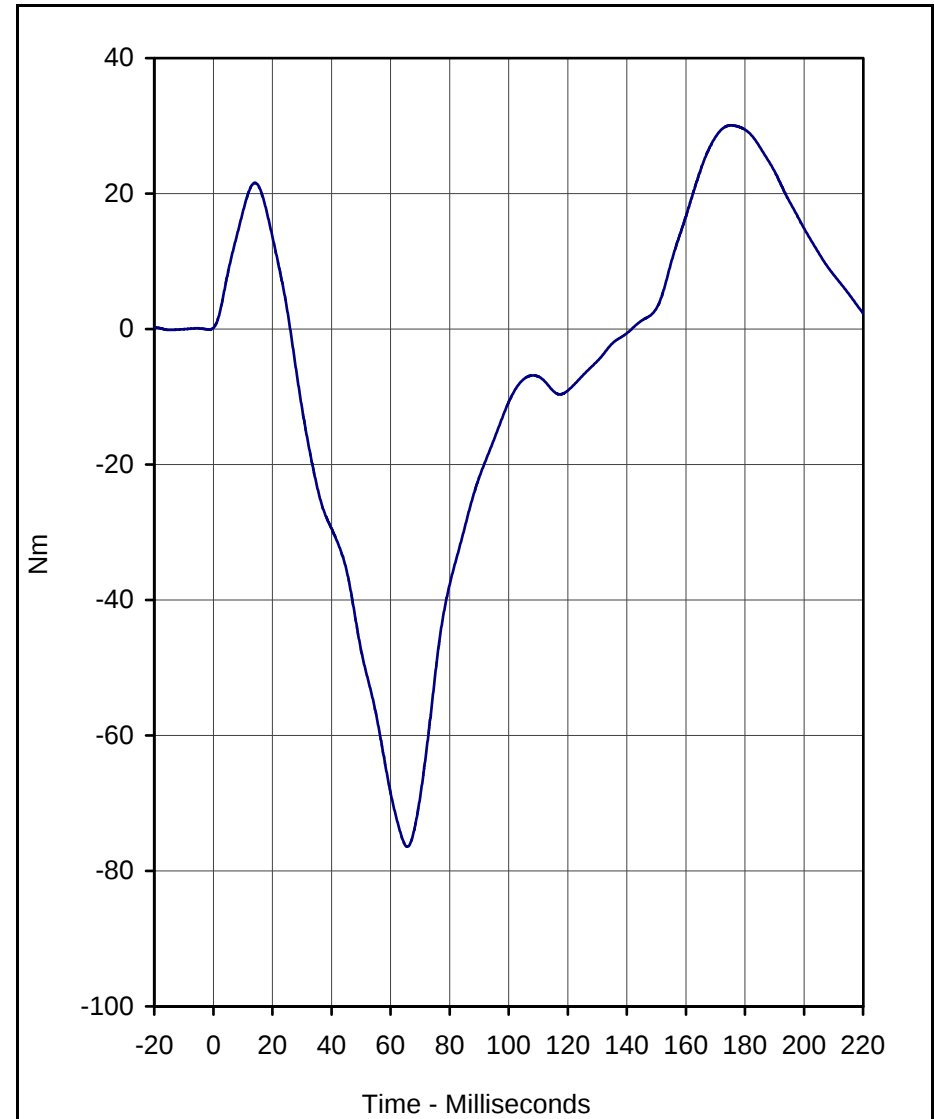




Curve Description	CURNO	Type
"D" Plane Rotation	003	FIL

Units	Max	Time	Min	Time	SAE Class
Degrees	86.8	76.7	-37.0	187.6	60

Test Program: Hybrid III 50th Percentile Male Neck Extension Test
 Test Date: 4/24/02



Curve Description	CURNO	Type
Moment About Occipital Condyle	004	FIL

Units	Max	Time	Min	Time	SAE Class
Nm	30.1	175.3	-76.4	65.7	60

A.T.D. Serial No.: 034
 Test I.D.: NE05A





Hybrid III Calibration Data Sheet

Hybrid III 50th Percentile Male

External Measurements

ATD Serial No.: 034

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
A - Total sitting height	mm	879 to 889	885	Pass
B - Shoulder pivot height	mm	505 to 521	515	Pass
C - "H" point height	mm	84 to 89	85	Pass
D - "H" point from seat back	mm	135 to 140	135	Pass
E - Shoulder pivot from back	mm	84 to 94	90	Pass
F - Thigh clearance	mm	140 to 155	145	Pass
G - Elbow back to wrist pivot	mm	290 to 305	300	Pass
H - Skull cap to back line	mm	41 to 46	45	Pass
I - Shoulder to elbow length	mm	330 to 345	340	Pass
J - Elbow rest height	mm	190 to 211	205	Pass
K - Buttock to knee length	mm	579 to 604	600	Pass
L - Popliteal length	mm	429 to 455	450	Pass
M - Knee pivot height	mm	485 to 500	490	Pass
N - Buttock popliteal length	mm	452 to 477	475	Pass
O - Chest depth	mm	213 to 229	225	Pass
P - Foot length	mm	251 to 267	255	Pass
V - Shoulder breadth	mm	422 to 437	435	Pass
W - Foot breadth	mm	91 to 107	100	Pass
Y - Chest circumference	mm	970 to 1001	985	Pass
Z - Waist circumference	mm	836 to 866	850	Pass
AA - Location for chest circumference	mm	429 to 434	430	Pass
BB - Location for waist circumference	mm	226 to 231	230	Pass
Overall Test Results			Pass	

Laboratory Technician

April 24, 2002

Test Date

E-13

KAR22001-08



Hybrid III Calibration Data Sheet

Hybrid III 50th Percentile Male

Knee Impact Test

ATD Serial No.: 035

Location: Left Knee

Test I.D.: LK01E

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.13	Pass
Peak Probe Force	N	4715 to 5782	5467	Pass
Overall Test Results				Pass

ATD Serial No.: 035

Location: Right Knee

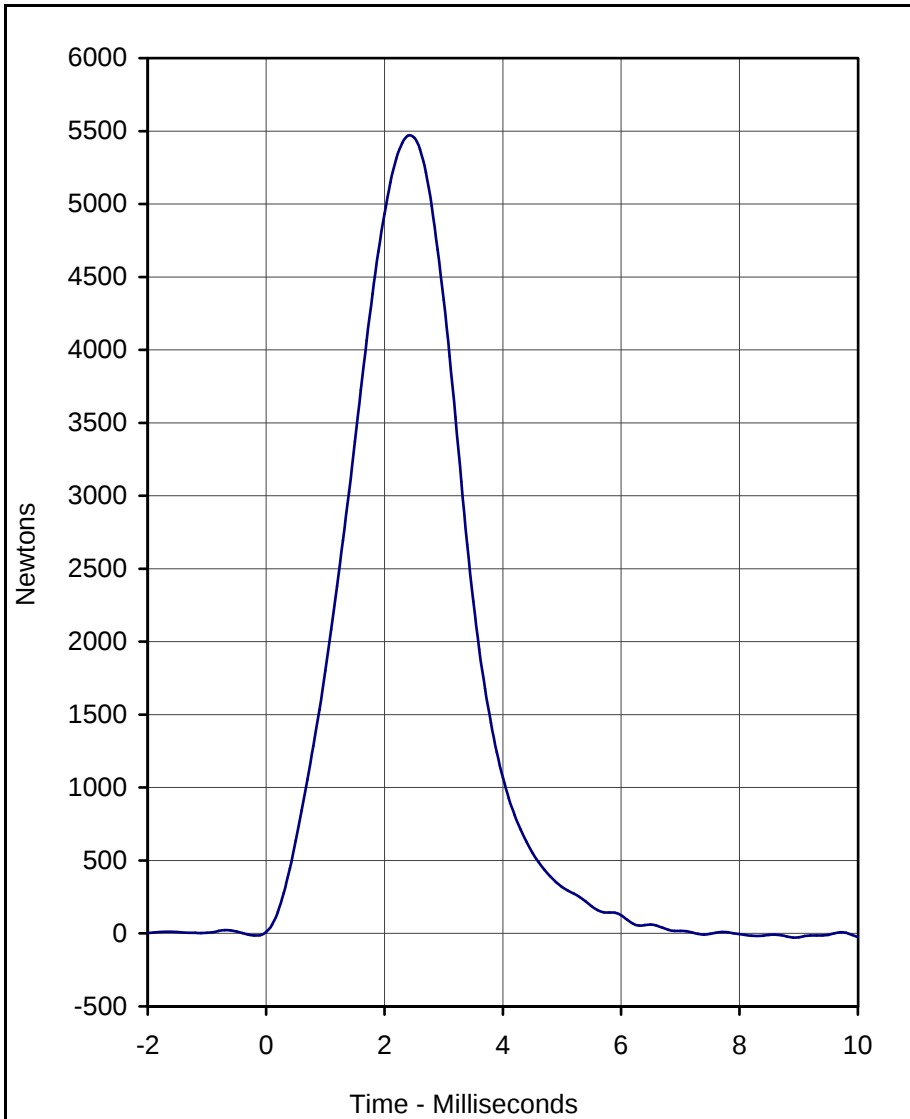
Test I.D.: RK10D

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.10	Pass
Peak Probe Force	N	4715 to 5782	5704	Pass
Overall Test Results				Pass

Laboratory Technician

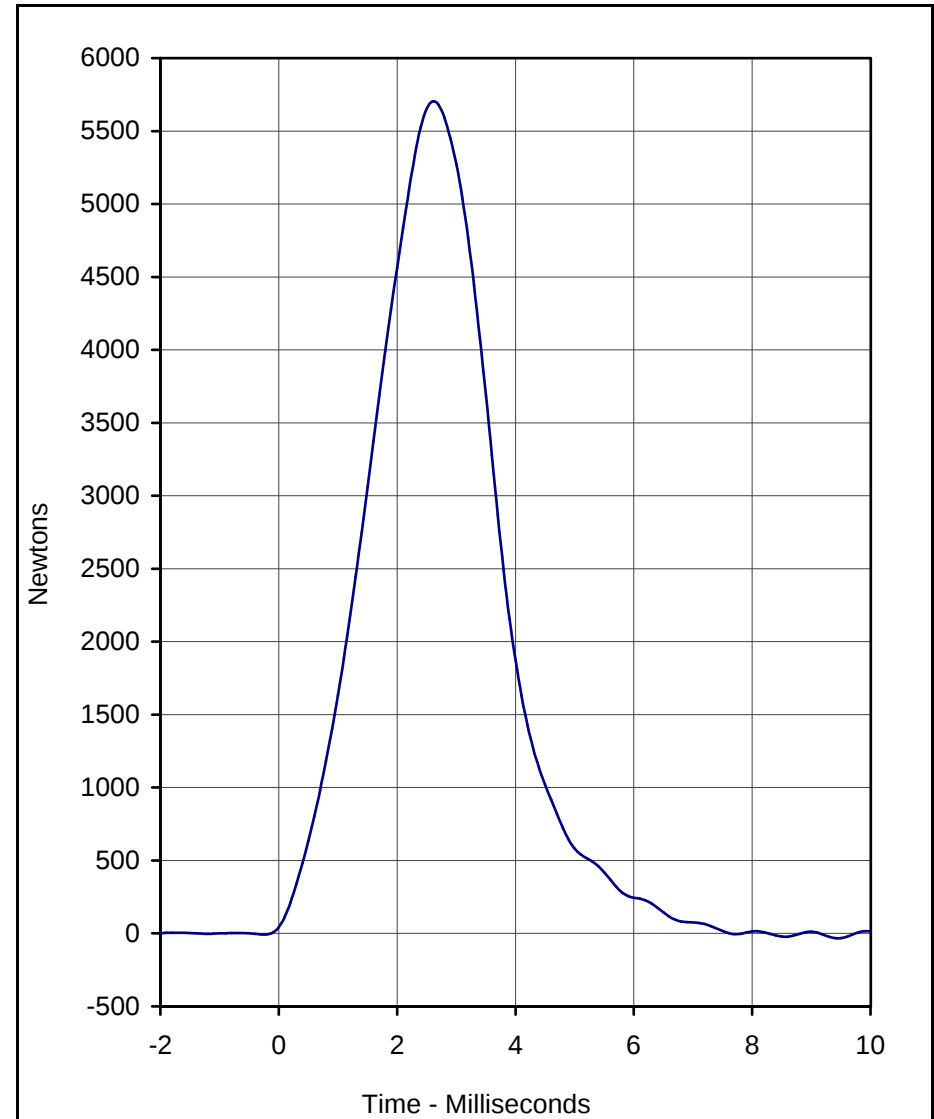
April 24, 2002

Test Date



Curve Description	Location	Test I.D.	CURNO	Type
Probe Force	Left Knee	LK01E	001	FIL

Units	Max	Time	Min	Time	SAE Class
Newtons	5467.3	2.4	-28.0	8.9	600



Curve Description	Location	Test I.D.	CURNO	Type
Probe Force	Right Knee	RK10D	002	FIL

Units	Max	Time	Min	Time	SAE Class
Newtons	5704.1	2.6	-32.7	9.5	600

Test Program: Hybrid III 50th Percentile Male Knee Impact Test
 Test Date: 4/24/02

A.T.D. Serial No.: 035





Hybrid III Calibration Data Sheet

Hybrid III 50th Percentile Male

Head Drop Test

ATD Serial No.: 035

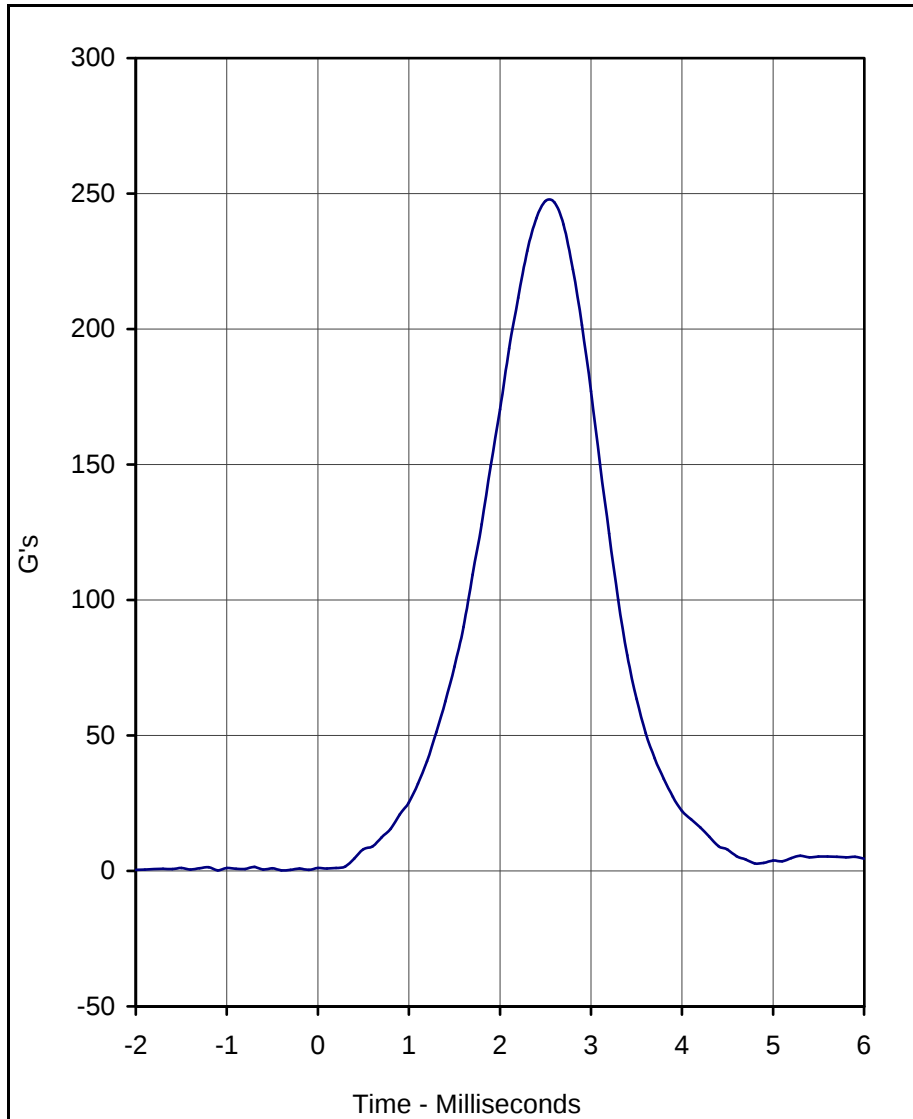
Test I.D.: HD01D

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Resultant Acceleration	G's	225.0 to 275.0	247.2	Pass
Peak Lateral Acceleration	G's	≤15.0	5.3	Pass
Overall Test Results				Pass

Laboratory Technician

April 24, 2002

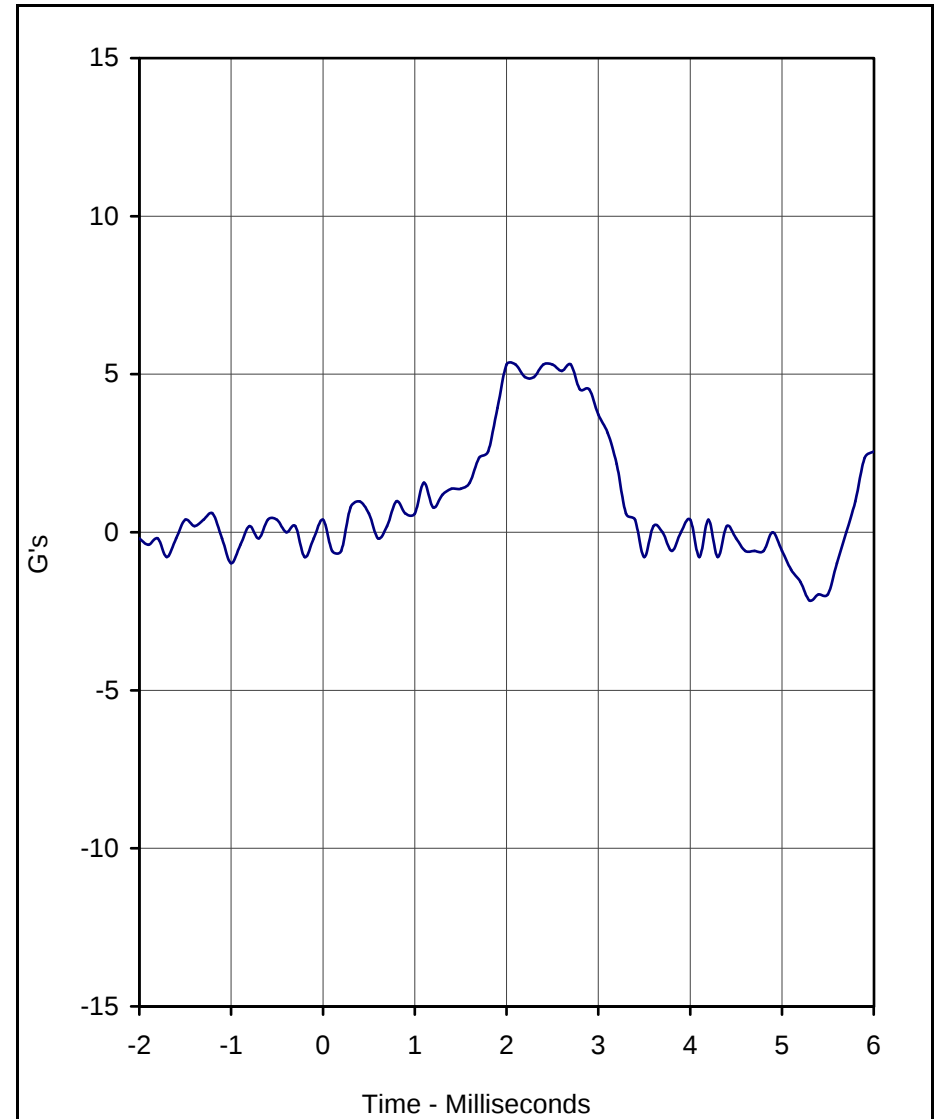
Test Date



Curve Description	CURNO	Type
Head Resultant	001	RES

Units	Max	Time	Min	Time	SAE Class
G's	247.2	2.5	0.2	-1.1	1000

Test Program: Hybrid III 50th Percentile Male Head Drop Test
 Test Date: 4/24/02



Curve Description	CURNO	Type
Head Y	002	FIL

Units	Max	Time	Min	Time	SAE Class
G's	5.3	2.0	-2.2	5.3	1000

A.T.D. Serial No.: 035
 Test I.D.: HD01D





Hybrid III Calibration Data Sheet

Hybrid III 50th Percentile Male

Thorax Impact Test

ATD Serial No.: 035

Test I.D.: CH05Y

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	6.58 to 6.82	6.67	Pass
Peak Probe Force	Newtons	5159 to 5893	5712	Pass
Peak Sternum Displacement	CM	6.35 to 7.26	6.44	Pass
Internal Hysteresis	%	69 to 85	76.1	Pass
Overall Test Results				Pass

E-18

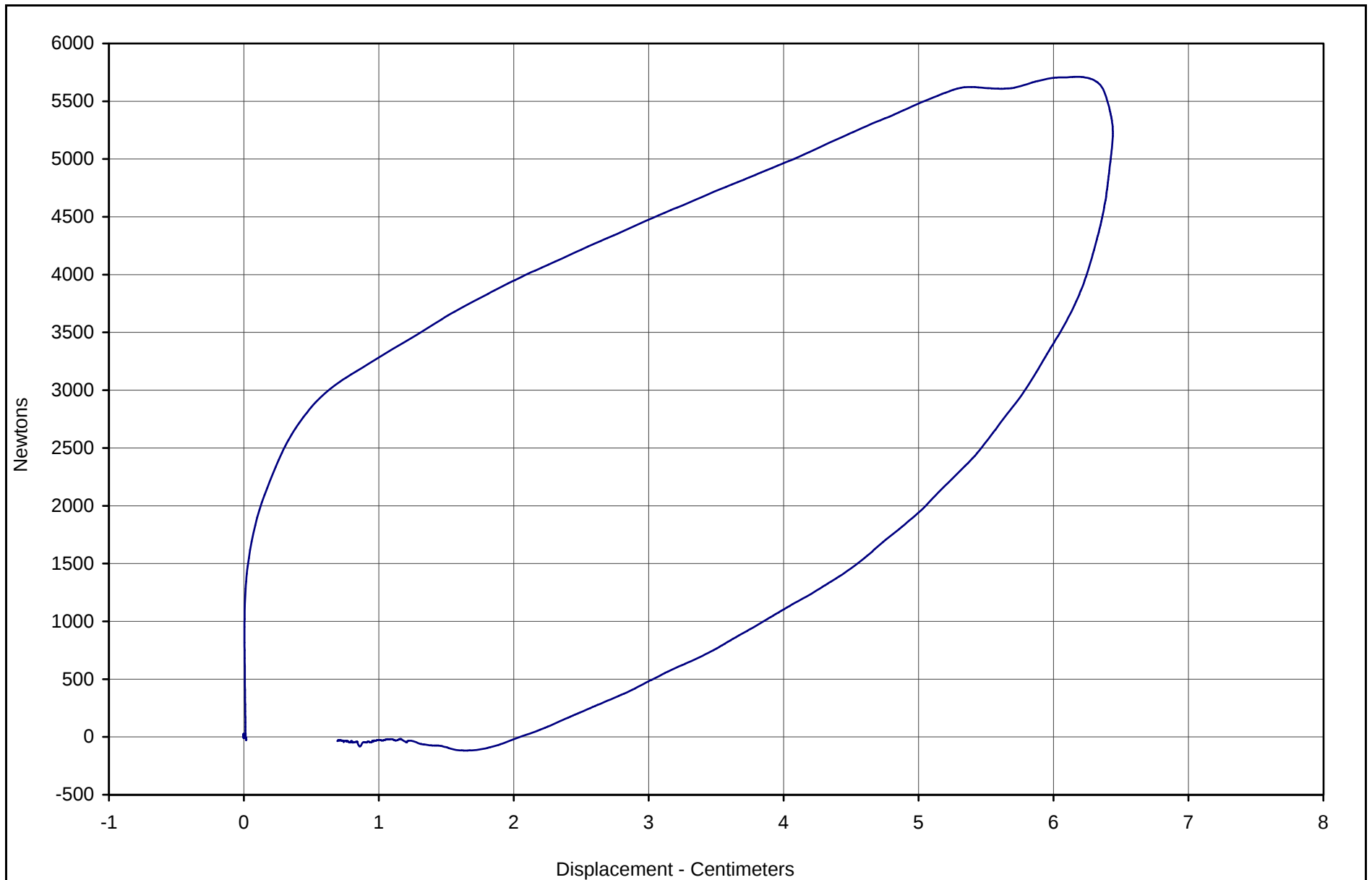
KAR22001-08

Laboratory Technician

April 24, 2002

Test Date

E-19



Curve Description	CURNO	Type	Hysteresis	Peak Chest Displ.	Peak Probe Force	SAE Class
Probe Force vs. Chest Displacement	001	FIL	76.1	6.44	5711.6	180



Test Program: Hybrid III 50th Percentile Male Thorax Impact

A.T.D. Serial No.: 035

Test Date: 4/24/02

Test I.D.: CH05Y

KAR22001-08



Hybrid III Calibration Data Sheet

Hybrid III 50th Percentile Male

Neck Flexion Test

ATD Serial No.: 035

Test I.D.: NF05B

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	6.89 to 7.13	6.98	Pass
Pendulum Deceleration	10 Msec.	G's	22.5 to 27.5	23.4	Pass
	20 Msec.	G's	17.6 to 22.6	21.2	Pass
	30 Msec.	G's	12.5 to 18.5	17.6	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 29.0	17.6	Pass
Deceleration Decay, Time to Cross 5 G's		Msec.	34.0 to 42.0	37.3	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	64.0 to 78.0	67.4	Pass
	Time	Msec.	57.0 to 64.0	63.9	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		Msec.	113.0 to 128.0	116.1	Pass
Moment About Occipital Condyle	Maximum	Nm	84.1 to 108.5	90.9	Pass
	Time	Msec.	47.0 to 58.0	54.2	Pass
Positive Moment Decay, Time To Zero Crossing		Msec.	97.0 to 107.0	99.8	Pass
Overall Test Results					Pass

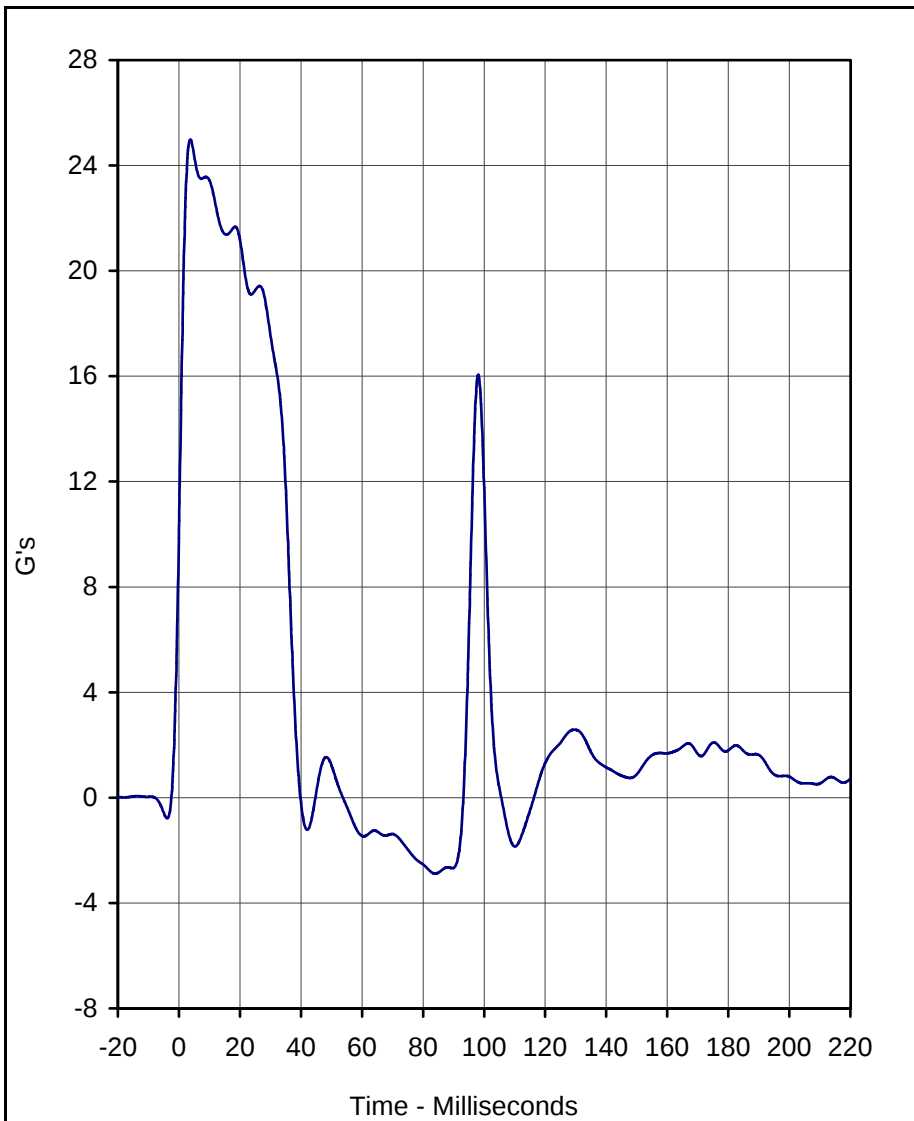
Laboratory Technician

April 24, 2002

Test Date

E-20

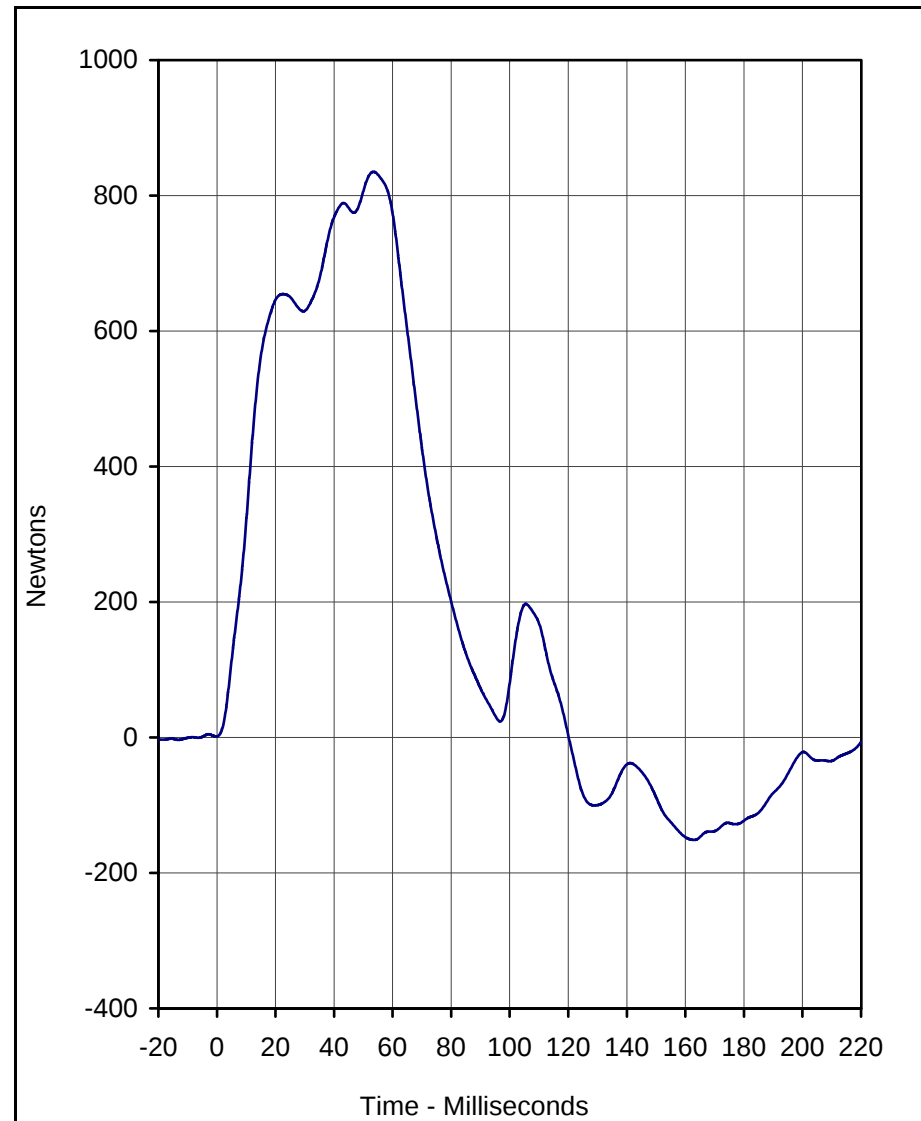
KAR22001-08



Curve Description	CURNO	Type
Pendulum Deceleration	001	FIL

Units	Max	Time	Min	Time	SAE Class
G's	25.0	3.7	-2.9	84.0	60

Test Program: Hybrid III 50th Percentile Male Neck Flexion Test
 Test Date: 4/24/02

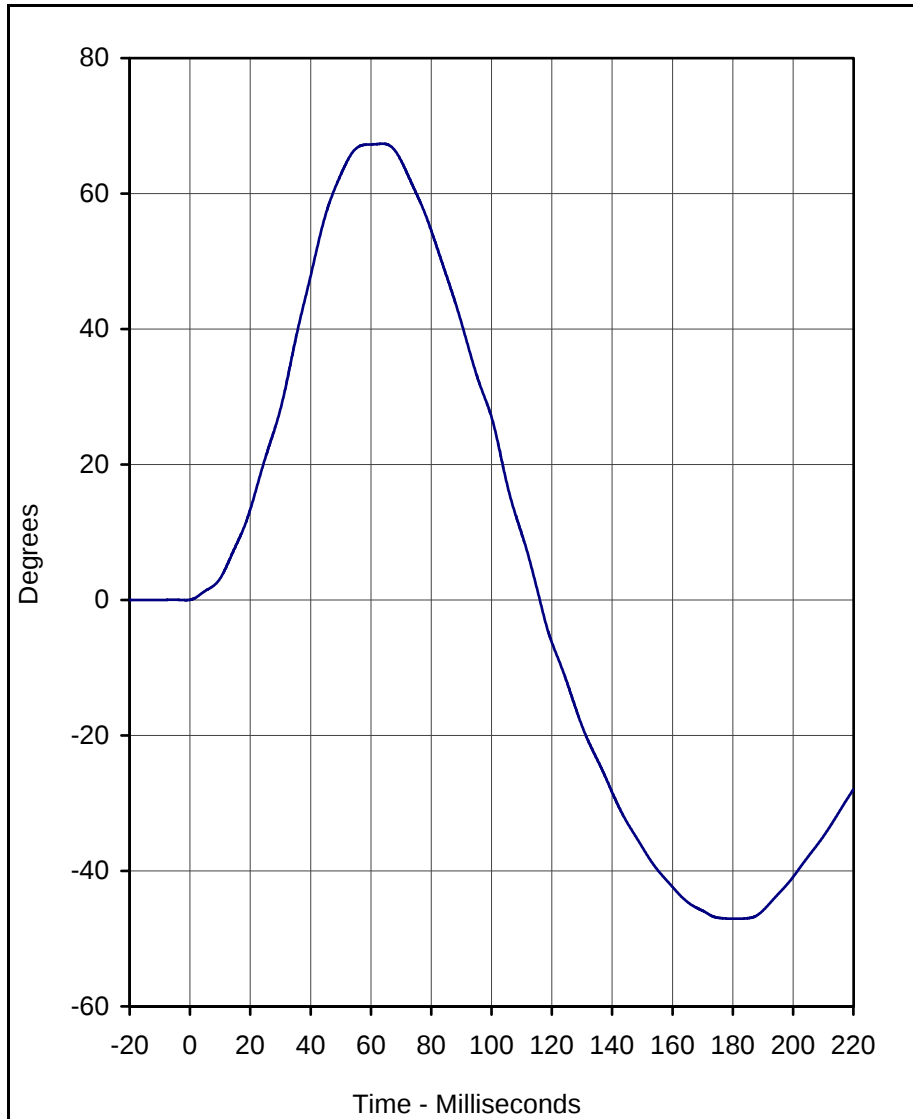


Curve Description	CURNO	Type
Neck Force X	002	FIL

Units	Max	Time	Min	Time	SAE Class
Newtons	835.1	53.5	-151.3	162.9	60

A.T.D. Serial No.: 035
 Test I.D.: NF05B

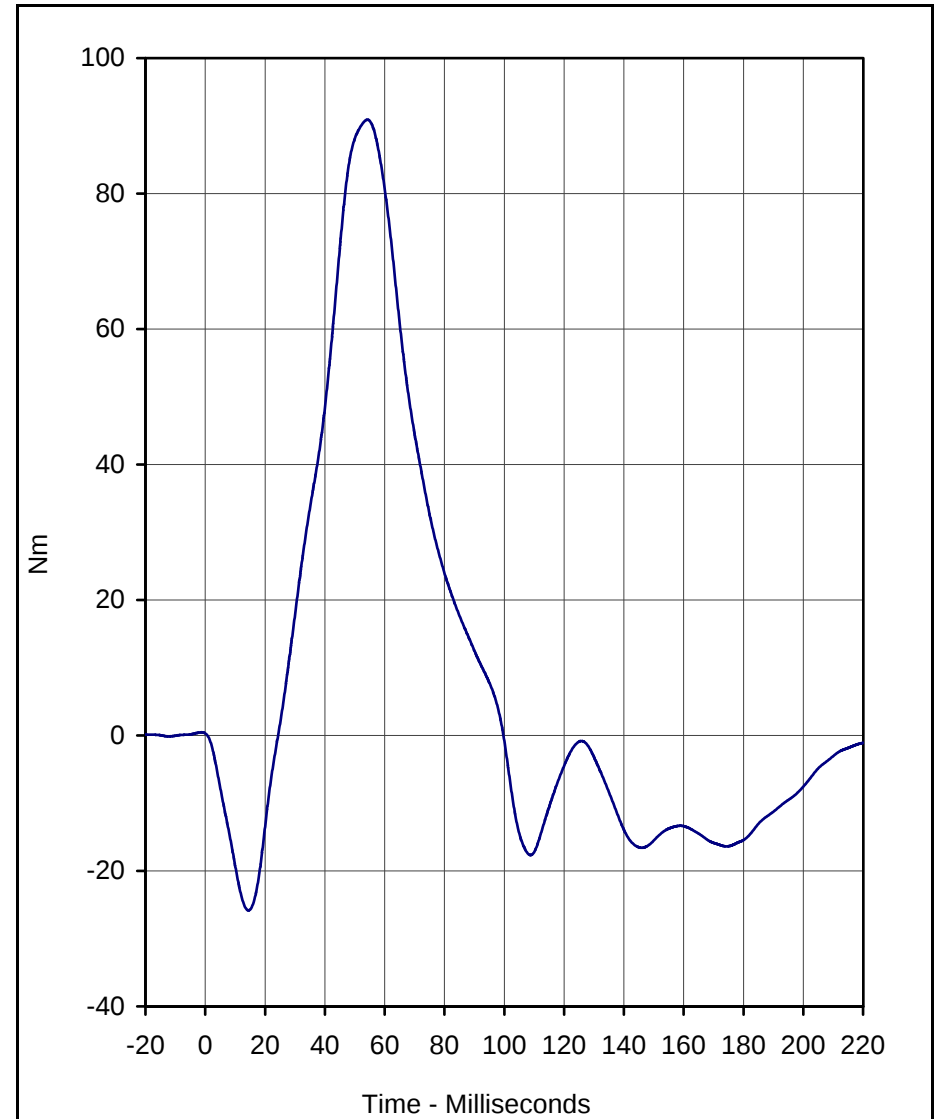




Curve Description	CURNO	Type
"D" Plane Rotation	003	FIL

Units	Max	Time	Min	Time	SAE Class
Degrees	67.4	63.9	-47.1	180.7	60

Test Program: Hybrid III 50th Percentile Male Neck Flexion Test
 Test Date: 4/24/02



Curve Description	CURNO	Type
Moment About Occipital Condyle	004	FIL

Units	Max	Time	Min	Time	SAE Class
Nm	90.9	54.2	-25.8	14.5	60

A.T.D. Serial No.: 035
 Test I.D.: NF05B





Hybrid III Calibration Data Sheet

Hybrid III 50th Percentile Male

Neck Extension Test

ATD Serial No.: 035

Test I.D.: NE05B

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	5.94 to 6.19	5.99	Pass
Pendulum Deceleration	10 Msec.	G's	17.2 to 21.2	18.9	Pass
	20 Msec.	G's	14.0 to 19.0	16.6	Pass
	30 Msec.	G's	11.0 to 16.0	15.2	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 22.0	15.2	Pass
Deceleration Decay, Time to Cross 5 G's		Msec.	38.0 to 46.0	40.6	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	81.0 to 106.0	83.2	Pass
	Time	Msec.	72.0 to 82.0	78.6	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		Msec.	147.0 to 174.0	147.9	Pass
Moment About Occipital Condyle	Maximum	Nm	-52.9 to- 79.9	-75.7	Pass
	Time	Msec.	65.0 to 79.0	65.6	Pass
Positive Moment Decay, Time To Zero Crossing		Msec.	120.0 to 148.0	144.7	Pass
Overall Test Results					Pass

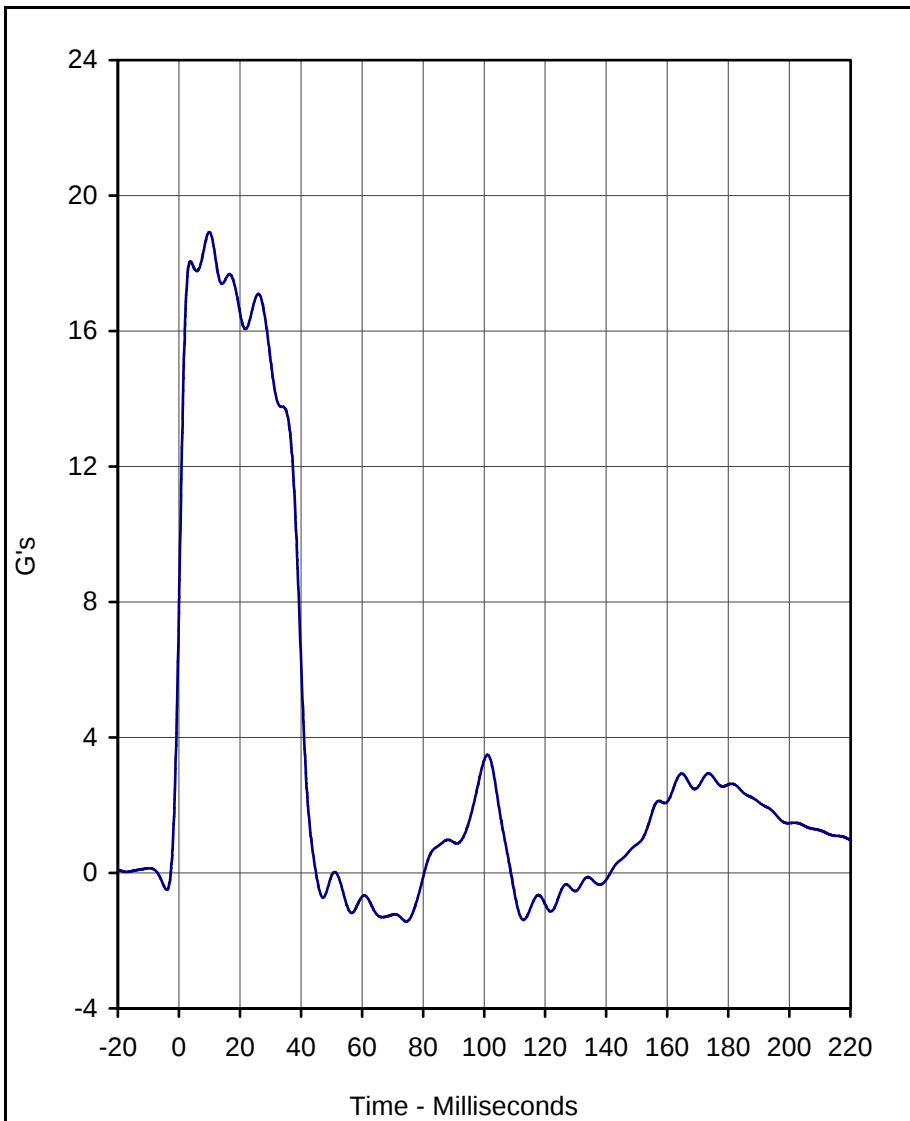
Laboratory Technician

April 24, 2002

Test Date

E-23

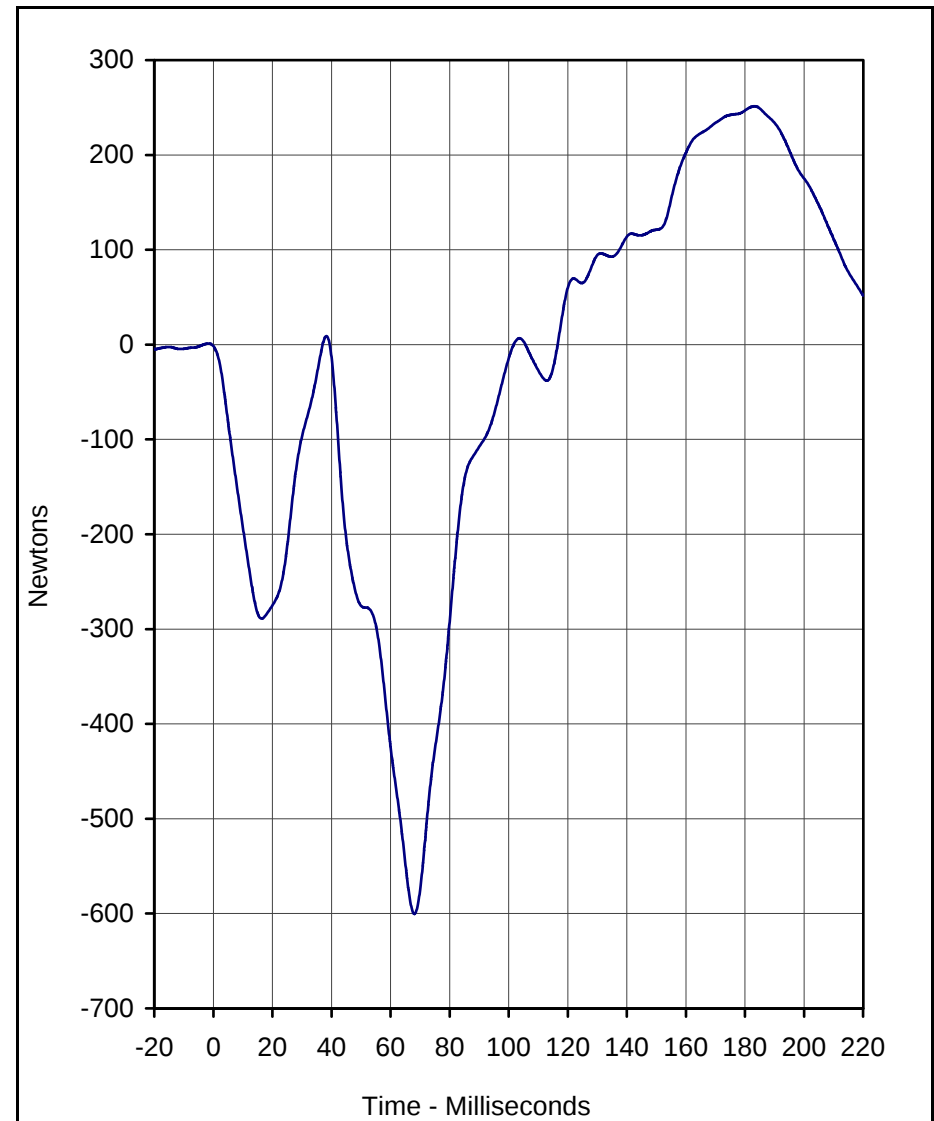
KAR22001-08



Curve Description	CURNO	Type
Pendulum Deceleration	001	FIL

Units	Max	Time	Min	Time	SAE Class
G's	18.9	10.0	-1.4	74.5	60

Test Program: Hybrid III 50th Percentile Male Neck Extension Test
 Test Date: 4/24/02

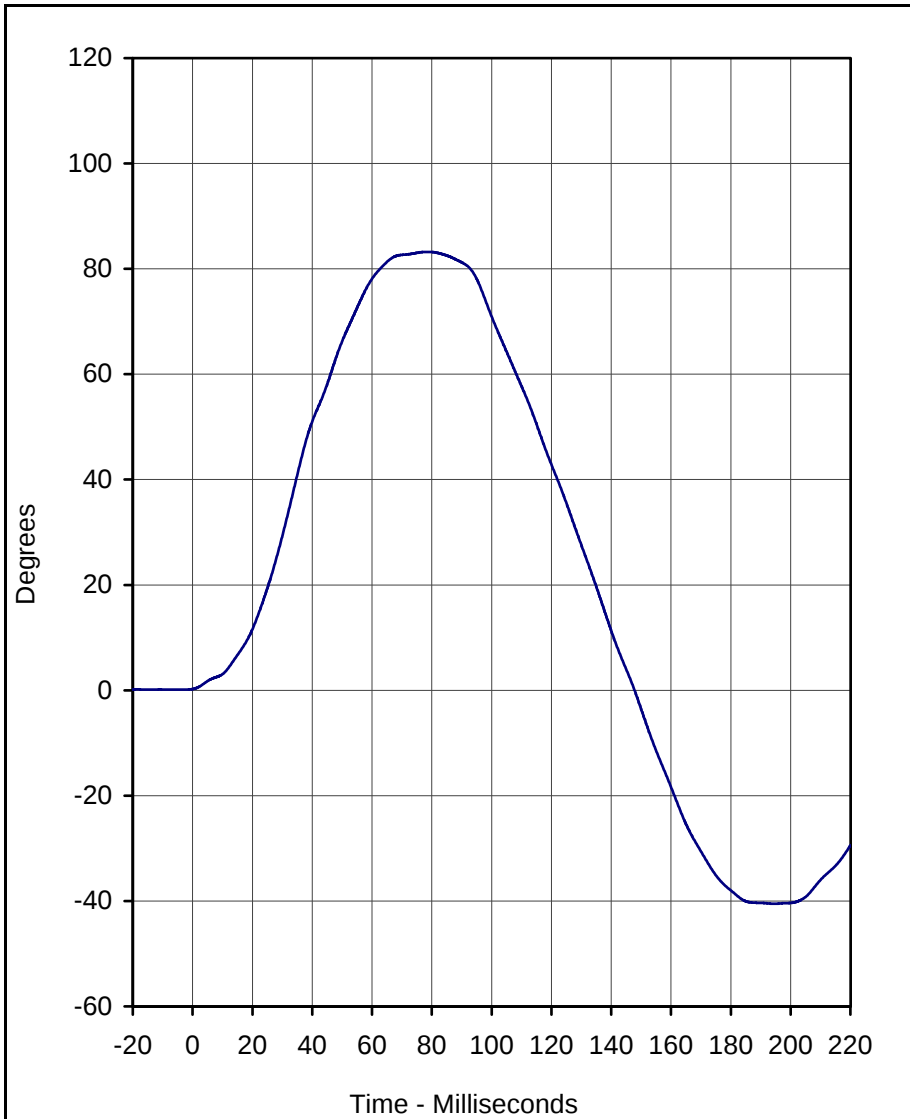


Curve Description	CURNO	Type
Neck Force X	002	FIL

Units	Max	Time	Min	Time	SAE Class
Newtons	251.2	183.2	-600.3	68.1	60

A.T.D. Serial No.: 035
 Test I.D.: NE05B

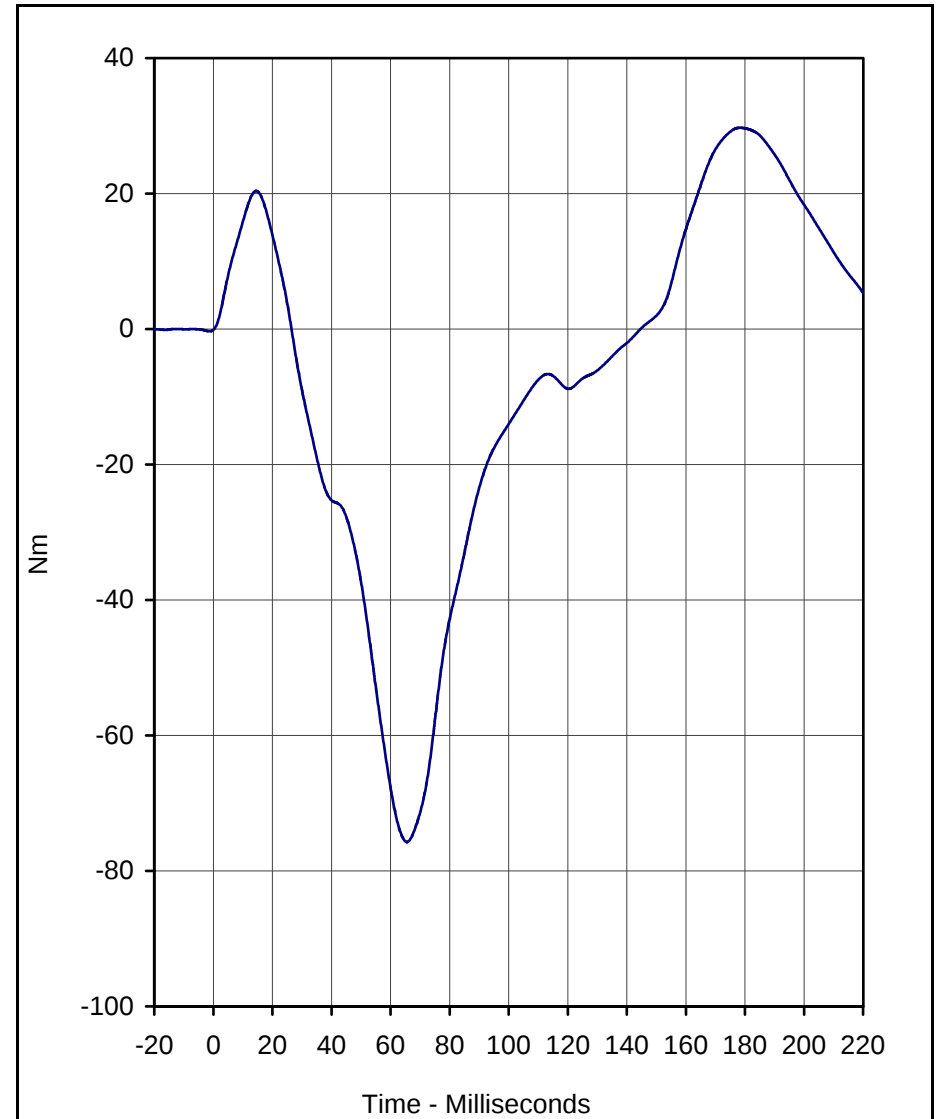




Curve Description	CURNO	Type
"D" Plane Rotation	003	FIL

Units	Max	Time	Min	Time	SAE Class
Degrees	83.2	78.6	-40.5	194.5	60

Test Program: Hybrid III 50th Percentile Male Neck Extension Test
 Test Date: 4/24/02



Curve Description	CURNO	Type
Moment About Occipital Condyle	004	FIL

Units	Max	Time	Min	Time	SAE Class
Nm	29.7	178.3	-75.7	65.6	60

A.T.D. Serial No.: 035
 Test I.D.: NE05B





Hybrid III Calibration Data Sheet

Hybrid III 50th Percentile Male

External Measurements

ATD Serial No.: 035

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
A - Total sitting height	mm	879 to 889	885	Pass
B - Shoulder pivot height	mm	505 to 521	520	Pass
C - "H" point height	mm	84 to 89	85	Pass
D - "H" point from seat back	mm	135 to 140	135	Pass
E - Shoulder pivot from back	mm	84 to 94	90	Pass
F - Thigh clearance	mm	140 to 155	150	Pass
G - Elbow back to wrist pivot	mm	290 to 305	295	Pass
H - Skull cap to back line	mm	41 to 46	45	Pass
I - Shoulder to elbow length	mm	330 to 345	340	Pass
J - Elbow rest height	mm	190 to 211	205	Pass
K - Buttock to knee length	mm	579 to 604	585	Pass
L - Popliteal length	mm	429 to 455	450	Pass
M - Knee pivot height	mm	485 to 500	495	Pass
N - Buttock popliteal length	mm	452 to 477	475	Pass
O - Chest depth	mm	213 to 229	220	Pass
P - Foot length	mm	251 to 267	260	Pass
V - Shoulder breadth	mm	422 to 437	435	Pass
W - Foot breadth	mm	91 to 107	105	Pass
Y - Chest circumference	mm	970 to 1001	1000	Pass
Z - Waist circumference	mm	836 to 866	860	Pass
AA - Location for chest circumference	mm	429 to 434	430	Pass
BB - Location for waist circumference	mm	226 to 231	230	Pass
Overall Test Results				Pass

Laboratory Technician

April 24, 2002

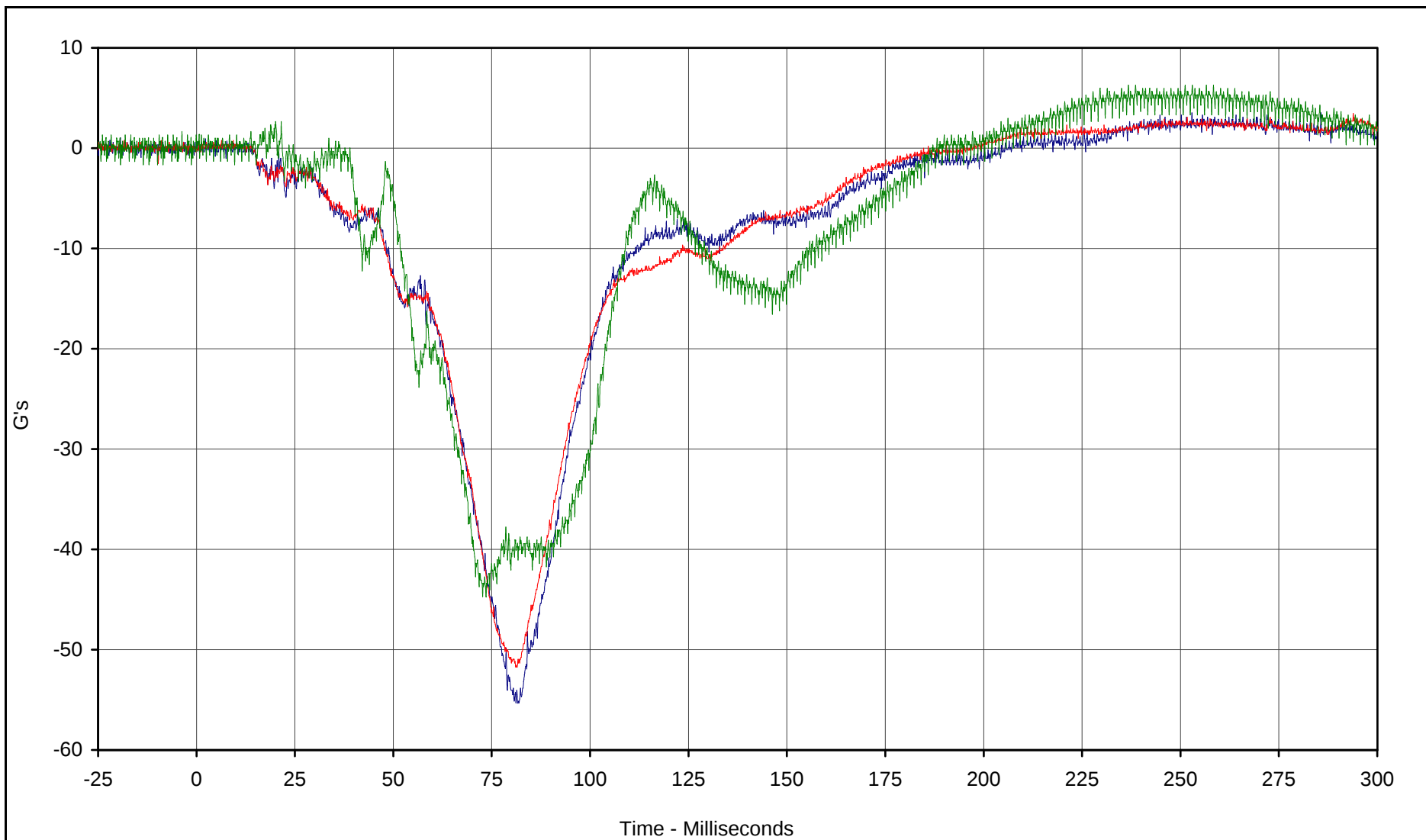
Test Date

E-26

KAR22001-08

APPENDIX G

NINE ACCELEROMETER HEAD ARRAY DATA



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Head Primary X	134	FIL	G's	3.5	252.9	-55.3	81.2	1000
Driver NAHA Yarm-X	138	FIL	G's	3.5	293.9	-51.7	81.1	1000
Driver NAHA Zarm-X	141	FIL	G's	6.3	236.8	-44.7	72.7	1000

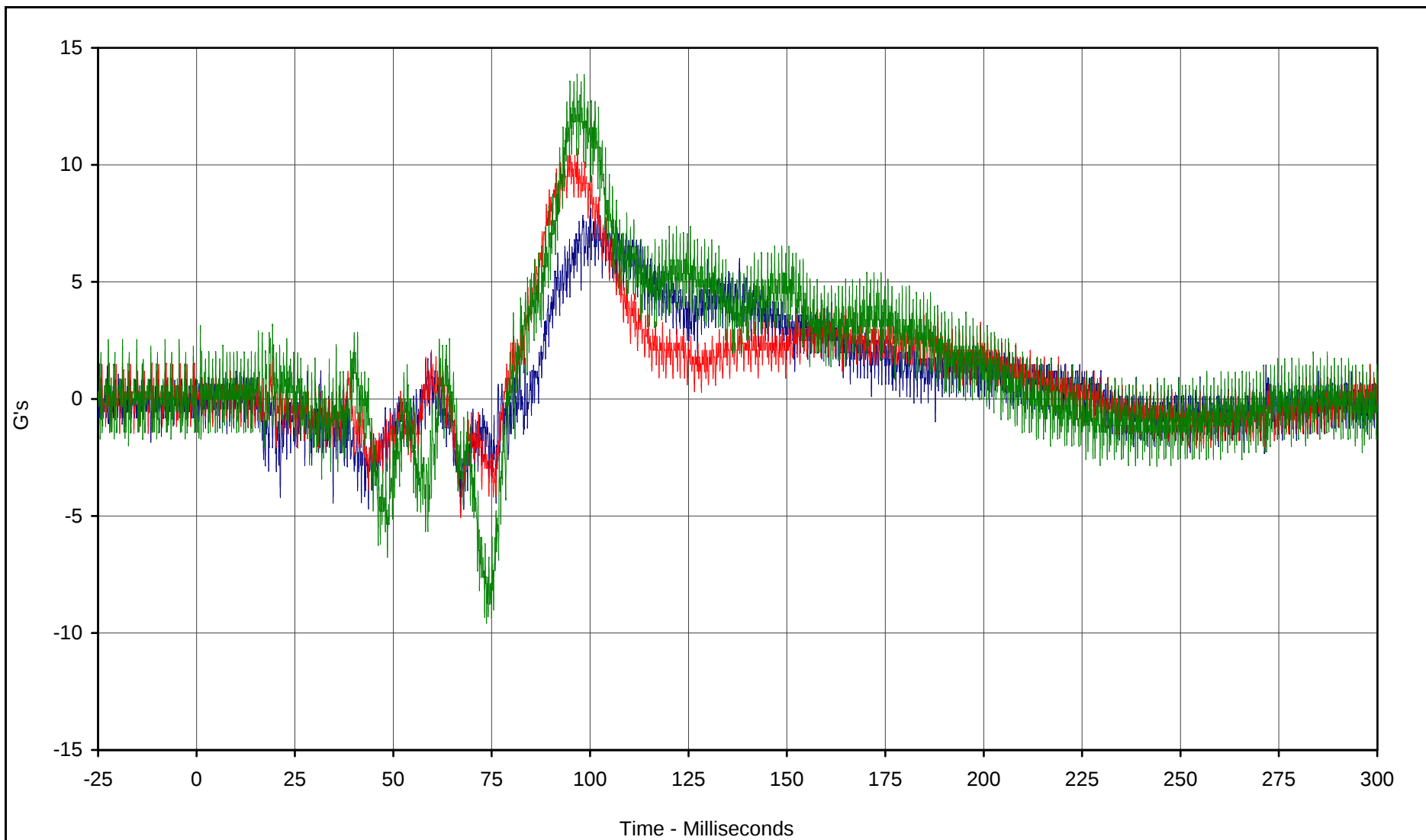


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Head Primary Y	135	FIL	G's	8.1	100.2	-5.0	67.1	1000
Driver NAHA Xarm-Y	140	FIL	G's	10.7	96.8	-5.1	67.1	1000
Driver NAHA Zarm-Y	142	FIL	G's	13.8	96.7	-9.6	73.7	1000

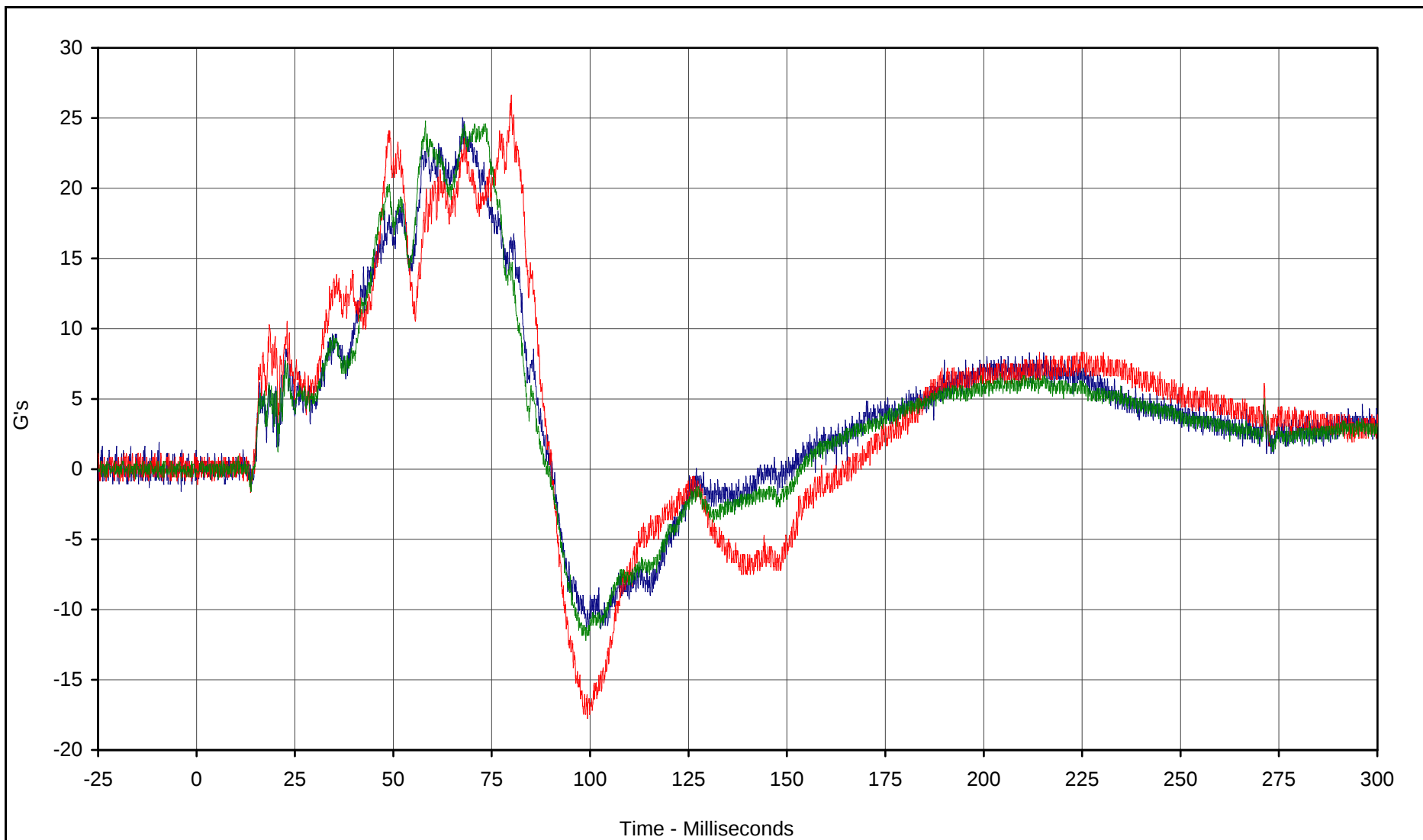


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Head Primary Z	136	FIL	G's	25.0	67.6	-11.4	99.1	1000
Driver NAHA Xarm-Z	139	FIL	G's	26.6	80.0	-17.7	99.3	1000
Driver NAHA Yarm-Z	137	FIL	G's	24.8	58.2	-12.2	98.9	1000

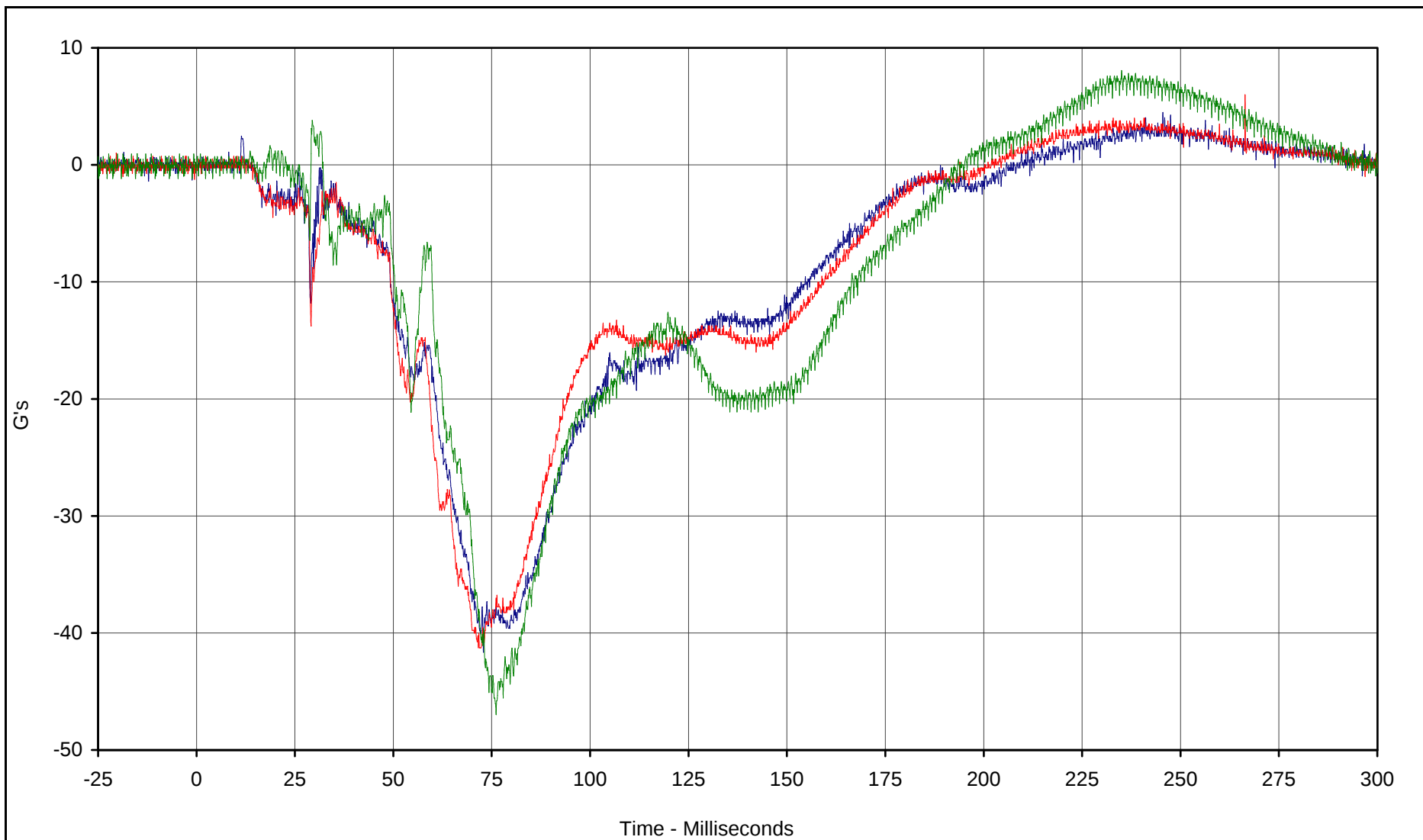


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Head Primary X	143	FIL	G's	4.5	245.5	-41.6	72.9	1000
Passenger NAHA Yarm-X	147	FIL	G's	6.0	266.4	-41.3	71.6	1000
Passenger NAHA Zarm-X	150	FIL	G's	8.1	235.0	-47.0	76.1	1000

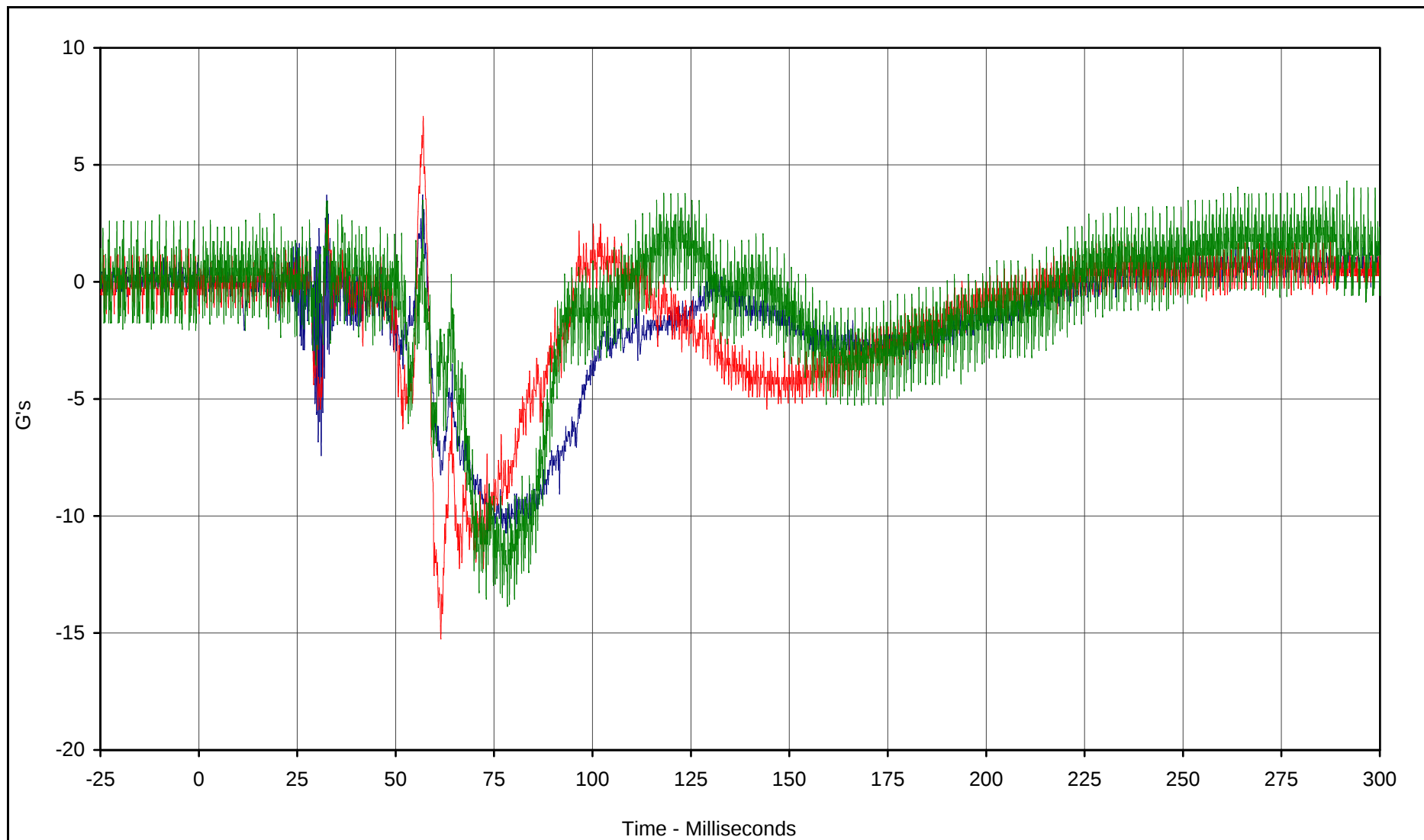


Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Head Primary Y	144	FIL	G's	3.7	32.5	-10.7	71.5	1000
Passenger NAHA Xarm-Y	149	FIL	G's	7.1	57.0	-15.3	61.5	1000
Passenger NAHA Zarm-Y	151	FIL	G's	4.3	291.6	-13.8	78.4	1000



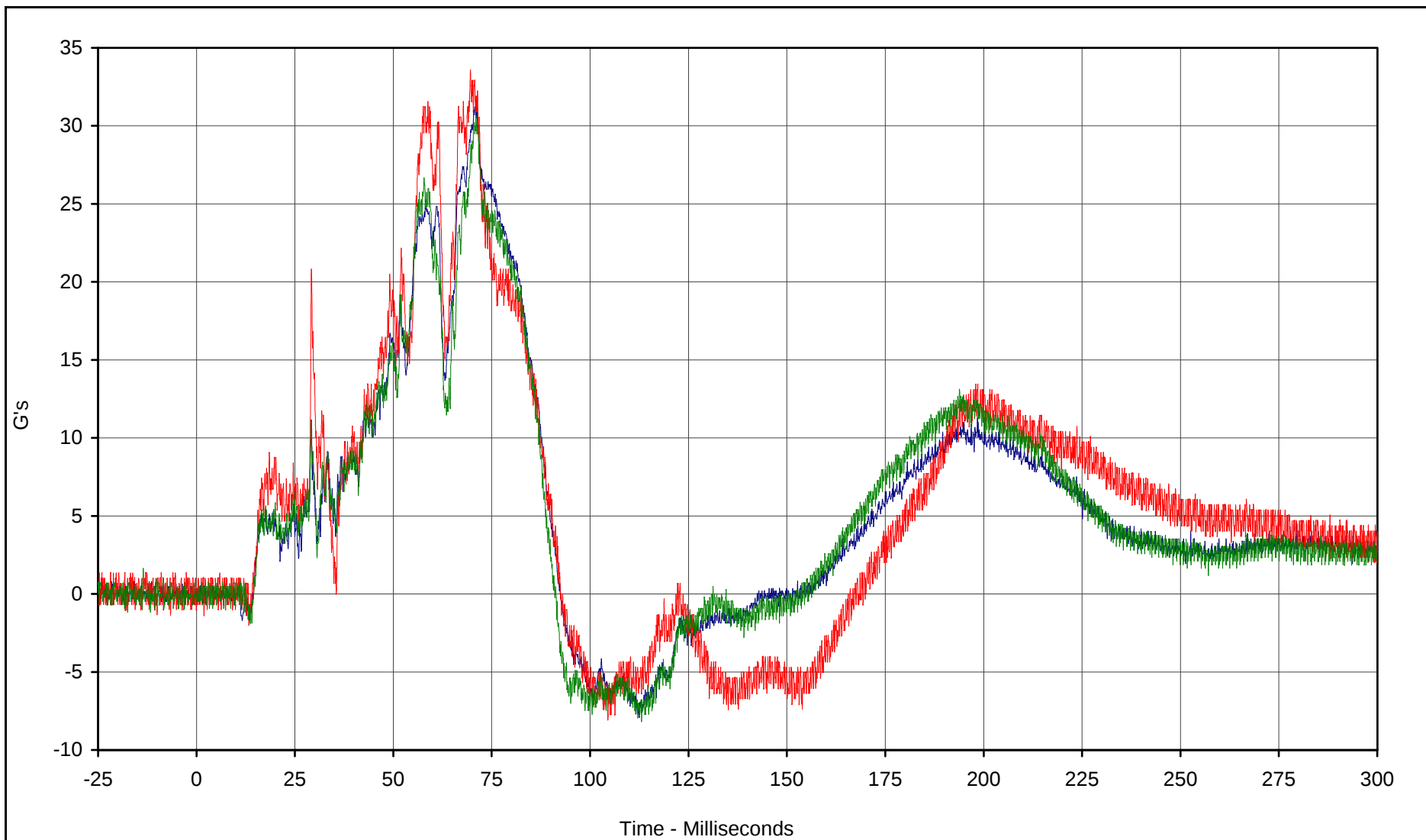
Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

G-6



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Passenger Head Primary Z	145	FIL	G's	31.2	70.7	-7.9	112.5	1000
Passenger NAHA Xarm-Z	148	FIL	G's	33.6	69.6	-8.1	104.5	1000
Passenger NAHA Yarm-Z	146	FIL	G's	30.7	71.0	-8.2	113.1	1000



Test Vehicle: 2002 Mazda MPV LX Minivan

Test Date: 5/14/02

Test Program: 2002 NHTSA 35mph NCAP

NHTSA No.: M25400

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